MARINE REVIEW.

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The New Insurance Combination.

In Cleveland on Thursday last the full scope of the new Great Lakes Register, together with the general plans of the insurance combination that is publishing it, were quite fully explained to a meeting of vessel owners. Numerous rumors had been circulated about low ratings which it was said would be given to some good boats. It was said, for instance, that only one wooden vessel on the lakes, the Pabst of Milwaukee, would be placed in the 100 class. The danger of vessel owners refusing to allow inspectors to go aboard their vessels was to be met with on account of these stories, and a hurried meeting of the men who have been identified with the register and the new insurance combination was called. Of these there were present W. A. Prime of the firm of Charles E. and W. F. Peck, insurance brokers of New York, London and Chicago; Geo. L. McCurdy of Chicago, who represents the Insurance Company of North America on the lakes; Edward Smith of Brown & Co., Buffalo; Capt. Fred N. La Salle of Duluth; Capt. F. D. Herriman of Chicago, who is the chief surveyor for the register, and Walter Miller of Cleveland, who is conducting surveys of machinery. The vessel owners present were W. D. Rees, John Mitchell, Geo. P. McKay, W. A. Hawgood, M. A. Bradley, J. C. Gilchrist, Albert J. Gilchrist, B. L. Pennington, Thomas Jones, C. F. Palmer, Thomas F. Murphy, W. J. Miller, James Corrigan, W. C. Rhodes and John W. Moore.

It may be said at the outset that although the meeting was called under circumstances that seemed entirely disadvantageous to the promoters of the register, it turned out very much to their advantage. It is not expected that vessel owners who have been doing business for a number of years through several general agents in Chicago and Buffalo, and through Johnson & Higgins of New York, will suddenly turn over their hull business to this combination, because of the success it has obtained in the the cargo business, or because of the leverage which the cargo business will have on insurance generally; but it must be admitted that the principles which the new combination proposes to carry out, both in their insurance business and in the publication of the register, met with general approval when explained by Mr. Prime, and it is more than probable that there will be no objection whatever to the full prosecution of the work of inspection.

Although the meeting was entirely of an informal kind, Mr. J. C. Gilchrist was asked to preside, and then Mr. Prime proceeded to explain the object of the new classification of vessels as well as the system under which it was being prosecuted. Numerous questions were asked by Messrs. Corrigan, Gilchrist, Pennington and others and answered by Messrs. Prime and McCurdy. The announcement that no attention would be given to age, size or value in the classification, the vessels standing entirely on their construction and condition, met with general approval, as it was explained that a vessel well kept up might be fifteen years old and valued at only $50,000, and still be classed as high and be accorded the same rate of insurance given to a larger vessel, that would be, for instance, only five years of age and valued by the owners at $100,000. The difference would, of course, be in the condition or construction of the two vessels.

W. A. Prime, who appears as the moving spirit in the scheme, created a very favorable impression among the vessel owners. He is of the clean-cut type of shrewd, quick-acting young men who are of late gaining prominence in the insurance business of the country. In the course of his remarks he referred to the very large amount of cargo business secured on the lakes within the past two or three years by his principals and the other underwriters with whom they are associated. The report about the Pabst being the only wooden vessel to be given the highest rating he pronounced unworthy of any attention, as the register work has not yet reached the point of deciding definitely even as to the number of classes. Still he knew personally of fifty wooden vessels that were regarded as the equal in every respect of the Pabst. Such reports probably eminated from assistant inspectors, who had no authority whatever in the matter of classification. They simply made reports on blank forms to Capt. Herriman, who would be given absolute power in the matter of classification, and who had been guaranteed continuity of office for five years, indicating that the combination was in the business to stay and to secure business slowly but surely under the best principles of underwriting that prevail throughout the world. The classification of vessels will not be completed, Mr. Prime said, for three or four months, at the least, and it is doubtful whether access to the register, even then, may be had by any one excepting the underwriters and their agents. But information collected by Capt. Herriman during the past three or four years is of great value, especially as regards the steel ships, and Mr. Prime announced that the combination is ready now to name rates on hull or cargo risks of any kind, even though the aggregate in the case of a single vessel and cargo may reach $600,000. Interests of vessel owners will be considered in the classification and in the preparation of rules, he said, through a governing committee, which will be made up of ship builders and vessel owners, and Capt. James Davidson of West Bay City will probably be chairman of this committee.

Iron Ore and Vessel Matters.

In line with the several very important changes in the iron industry that have followed the announcement of the Carnegie-Rockefeller ore and transportation deal, it is announced now that the movement of all the Carnegie ore, amounting to about 1,500,000 tons, and including a small amount of Pewabic ore that is shipped through Escanaba, will receive attention in Cleveland from E. S. Mills, who has represented the Carnegie company for some time past as a sales agent, and who will have his present office force increased so as to attend to this new business. As the Rockefeller vessels are to carry this ore, and as it all goes to Carnegie furnaces, the matter of caring for its transportation will be unimportant as compared with ore that must be sold, and for which vessels must be provided. But this action of the Carnegie company is the final move in a long line of reductions in cost of material. It removes entirely from the hands of middlemen—Cleveland ore sales agents—the handling of any part of this large amount of ore.

Contrary to what might be expected, the collapse of the steel rail pool is not in any way a source of worriment to the producers of iron ore. In fact it is the general opinion of ore dealers in Cleveland that the failure of this big combination, which has held prices of steel rails far above reasonable figures, may stimulate trade to an extent that will result in a demand for new ore somewhat sooner than might be expected under the conditions that have prevailed for several weeks past. As it is now, there is absolutely nothing in the ore business to warrant preparations for the coming season of navigation, and no assurance that there will be any purchases of 1897 ore for two months or more to come. The ore business will be benefited, therefore, if the collapse of the steel rail pool causes additional consumption and results in other steel products, such as billets and rods, standing on their own merits. It is fully understood that under the operations of the rail pool manufacturers depended upon the profit in rails to enable them to reduce prices of other steel products below actual cost of production in some cases. Now the situation will be different, as everything in the line of steel will be worked on an equal basis. The dissolution of the steel rail combination will have no effect on the iron ore association. It may be that the ore producers will fail entirely in their efforts to agree upon prices of Bessemer ore for 1897, but if such is the case it will not be on account of any influence exerted by the failure of the steel rail manufacturers to hold together. It will be due to the producing-consuming element that is fast gaining a strong foothold in the ore business.

Major Clinton B. Sears of Duluth will open bids, Monday, on the big contract which involves dredging in the harbors of Duluth and Superior. The contract will extend over four years and the amount of material to be removed is about 21,000,000 cubic yards. Probably twenty dredges will be engaged at times on this work.

Against River and Harbor Appropriations.

On several occasions in the past the right of the government to appropriate funds for river and harbor improvements has been questioned. This subject was referred to in the Review not long ago when extracts were printed from an article by Mr. George Tunell in the Journal of Political Economy. This journal is published by the University of Chicago, and Mr. Tunell's contributions on subjects pertaining to lake transportation have attracted considerable attention. In the article referred to, he directed attention to the claim that, if in computing the cost of transportation by water as compared with that of transportation by rail, there is included in the case of the railways the cost of construction, equipment, etc., allowance must be made on the other hand for the cost of constructing water channels and harbors, building and maintaining docks, light-houses, locks, etc., most of which is born by the government. This article has been taken as the basis of an editorial in the Railway Review of Chicago, in which the broader claim, that of the government aiding one branch of commerce to the detriment of another, is discussed. Vessel owners are of course willing, at all times, to listen to any argument that may be produced on this score, and they will therefore be interested in the editorial from the railway publication, which follows:

"Nothing is more common than for writers upon the relative merits of water and rail transpcrtation to enlarge upon the power of the first named to regulate rates. It is generally claimed that water transportation acts as a kind of balance wheel, and were it not for its influence the railroads would demand exorbitant rates for their service. The idea that the reverse of this commonly accepted opinion is true, and that railroads have been the means of lowering the cost of water transportation, would be received with a considerable degree of incredulity, but it may be doubted if such is not actually the fact. Mr. Tunell is the only writer to our knowledge, outside the columns of this paper, to point out the unfairness of the comparisons usually made in dealing with the water and rail transportation. He distinctly indicates that in order to arrive at any fair basis, all the elements entering into the cost of both methods must be given consideration. If, in computing the cost of rail transportation, reference must be had to construction, equipment, maintenance and operating, as well as movement expenses, so in estimaitng the cost of water transportation the expenditure required for the construction and maintenance of docks, channels, harbors, light-houses, locks, buoys, etc., must be taken into account. The fact that these last-named items do not constitute a direct charge upon property in course of transportation is of no moment. The people who pay the freight upon such commodities also furnish the money required for these outlays. If the various sums devoted to navigation could be gathered together, and apportioned to the traffic benefited thereby, a material difference in the apparent cost of this class of traffic would be shown. Reflections upon such considerations as these seem to raise the question as to why the government is not in duty bound to exercise the same degree of care and furnish the same amount of assistance in the conduct of land transportation as in water transportation. It is of course conceded that in such a case the control of both kinds of transportation is a perquisite; that the government must own the rail channel as well as the water channel. But such ownership does not necessarily include operation. The government already owns the water channels, but it does not attempt to operate them. In fact the control exercised by it is much less in the aggregate than it exerts over rail transportation even under present conditions. It is true that operating conditions do not permit of the free public use of railways in the same sense as does a water channel, but in a larger sense it is more true of the rail route than of the water; for while an individual may not be able to run his own vehicle at will upon a railway, he can compel the carriage of his property by the railroad. A water carrier can refuse to perform this service, but the rail carrier can not; and, given the ownership and maintenance of a railroad by government, the detail of transportation, or the use of the railway, by private individuals or corporations would be a matter of easy adjustment.

"The Railway Review is not an advocate of the ownership and operation of railroads by the government, nor is it yet prepared to advocate a division of the question making the ownership a function of government coupled with private operation. It is, however, opposed to the proposition that the government shall aid one branch of commerce to the detriment of another. It can see no justice in the theory that large amounts of public money shall be spent for the improvement and maintenance of water routes for the avowed purpose of depleting the revenues of the rail routes, and thereby destroying the property of those who have honestly invested their money therein. The people of the United States are entitled to the best transportation service that can be furnished at the least possible aggregate cost, but they have no right to appropriate public money, which is the contribution of all classes, to the upbuilding of one class and the destruction of another. Millions of dollars of such money is being spent annually upon our great lakes, which, in effect, requires a corresponding expenditure without a return by the railroads, in order that the two routes may be maintained upon a competitive basis. The problem thus presented is difficult of solution, but it is believed that the genius of the American people is equal to the task. That the education of years can be easily overcome is not expected, any more than that the users of water routes will immediately concede the point where raised. Fairness, however, is one of the chief characteristics of this people, and it is believed that, if it shall be found that the point is well taken, the answer will be discovered and accepted."

Association of Masters and Pilots.

Delegates from lake cities to the annual convention of the American Association of Masters and Pilots of Steam Vessels, held recently in Washington, were interested mainly in the beneficial work of the organization. The association is, of course, always at work on matters in congress and in the several departments of the government pertaining to the interests of masters and pilots on the coasts and rivers, but little was done regarding legislation pertaining to the lakes, on account of the Lake Carriers' Association and the Ship Masters' Association dealing specially with these waters.

The new national officers are as follows: Grand captain, Wm. S. Van Keuren of Kingston, N. Y.; grand first pilot, Wm. S. Durkee of Brookline, Mass.; grand second pilot, Wm. D. McManus, St. Louis, Mo.; grand purser, Luther B. Dow, Brooklyn, N. Y.; grand captain's clerk, Benjamin F. Perkins, Camden, N. J.

The captain's clerks, or secretaries, at the several points on the lakes where harbors of the organization are now established are as follows: Chicago, Geo. Tebo; Buffalo, Joseph P. Fontaine; Cleveland, Lee T. Brogan; Toledo, Geo. E. Hardy; Duluth, S. A. Larnoreaux; West Bay City, Wm. H. Thorp; Port Huron, J. W. Montgomery; Detroit, A. E. V. Lachlan.

Delegates form Portland, Me., and Portland, Ore., were in attendance at the convention. Among delegates from lake ports were Captains Tebo and Jenks of Chicgao, Ferguson of Buffalo, Benham of Cleveland and Reynolds of Port Huron.

Marking Vessels' Names.

Some minor amendments have again been made in the law relating to the marking of vessels' names. The new act, as approved by the president a few days ago, is now in full as follows:

"Be it enacted, etc., that the act entitled 'an act to amend section 4,178, revised statutes in relation to the marking of vessels' names at bow and stern and also to provide for marking the draft,' approved Feb. 21, 1891, is hereby amended as follows: That section 4,178 of the revised statutes be, and the same is hereby, amended to read entire as follows:

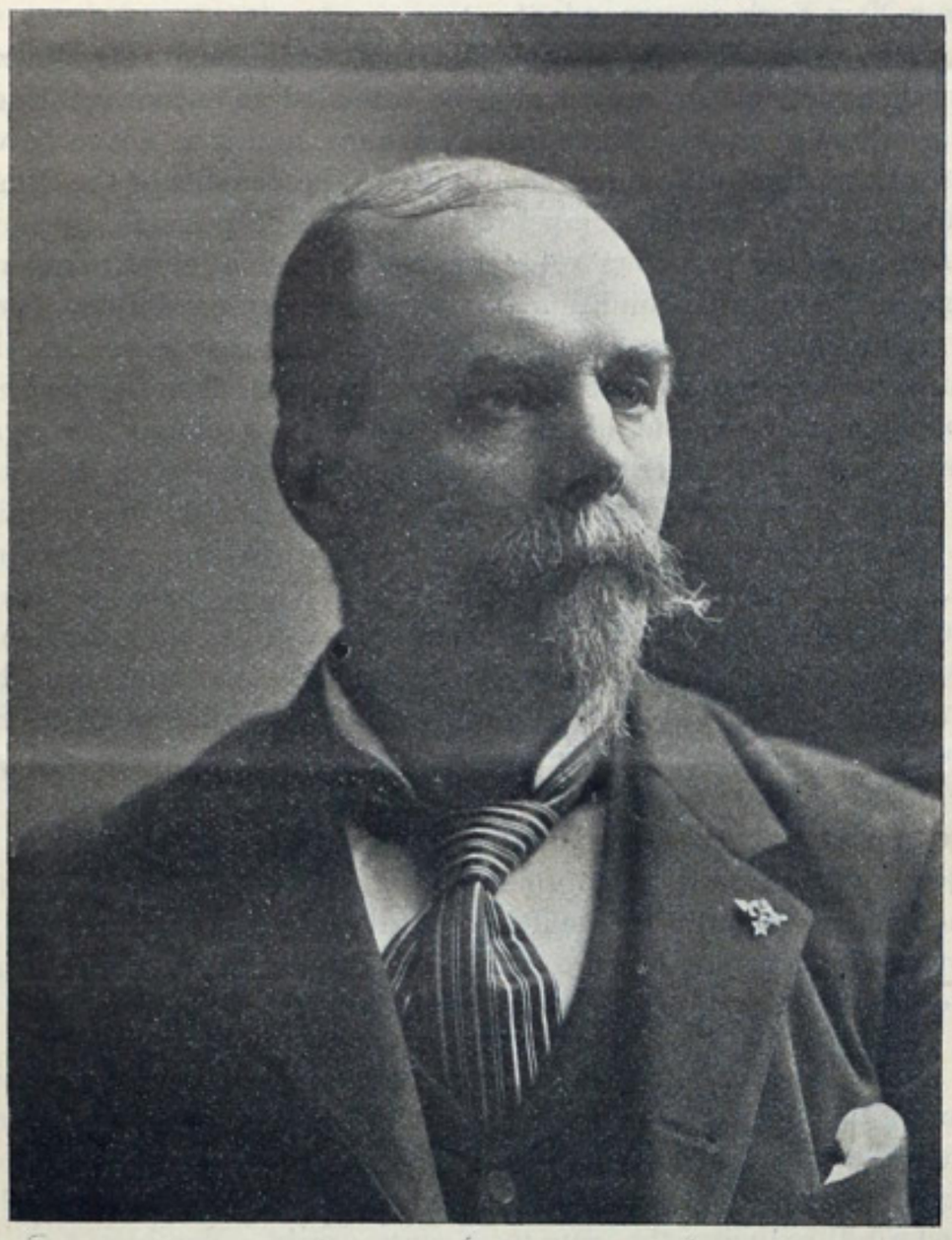
"Sec. 4,178. The name of every documented vessel of the United States shall be marked upon each bow and upon the stern, and the home port shall also be marked upon the stern. These names shall be painted or gilded, or consist of cut or carved or cast roman letters in light color on a dark ground, secured in place, and to be distinctly visible. The smallest letters used shall not be less in size than 4 inches. If any such vessel shall be found without these names being so marked the owner or owners shall be liable to a penalty of $10 for each name omitted; provided, however, that the names on each bow may be marked within the year 1897.

"Sec. 2. That the draft of every registered vessel shall be marked upon the stem and stern post, in English feet or decimeters, in either Arabic or roman numerals. The bottom of each numeral shall indicate the draft to that line."

Now that the Lake Ontario grain movement will be increasing, masters will want Lake Ontario general chart No. 61 and coast chart No. 1, as well as St. Lawrenc river charts Nos. 4, 5 and 6. The five will be sent by the Review to any address by express for $2.

The Late Hugh McMillan.

Since announcement of the death of Hugh McMillan of Chicago, western agent of the Western Transit Co., was made in the Review of last week, vessel men in all parts of the lakes have given expression to a great sense of sorrow occasioned by the loss of one of the most



prominent men connected with the big railways that operate steamship lines on the lakes. A tribute to the memory of Mr. McMillan from leading members of the Lake Carriers' Association in Cleveland is as follows:

"Again the vessel owners of Cleveland are called together to express their humble tribute to the memory of a deceased associate, another having been taken from our ranks. This time it has fallen to our lot to mourn the untimely death of Hugh McMillan of Chicago. He was long identified in a large sense with the lake marine interests. He was a man of much more than average executive ability and force. His chief qualifications were candor, integrity, painstaking attention to detail, and untiring labor in the buisness entrusted to his care. He was widely known throughout the chain of lakes, and those personal friends who knew him best loved him most. To his afflicted family we tender our sincere sympathy and condolence in their great bereavement."

The Rochester & Pittsburg Coal & Iron Co., which has the handling of ore that goes to the new furnace of Rogers, Brown & Co., at Punxsutawny, where the coke ovens of the Buffalo, Rochester & Pittsburg Railroad are situated, is preparing to put in two Brown hoists at the docks on the Blackwell canal, to assist the McMylers now in use there. The furnace is to be blown in shortly. Thirty thousand tons of ore was fowarded over these docks last season, and the arrangement is to ship 100,000 tons there annually hereafter. The ore does not go into stock here, but will be loaded into cars direct from vessel.—Buffalo Exchange.

Fred W. Martin, yacht designer of Racine, Wis., has a set of drawings, with description, of a 70-foot steam yacht in the February number of the Rudder, New York. The design is that of a cheap and serviceable craft, that can be built and owned by the average prosperous business man, who can afford to keep her in commission during the season at home, and can take a few friends on cruising, hunting or fishing trips.

The Review has excellent photographs of lake ships.

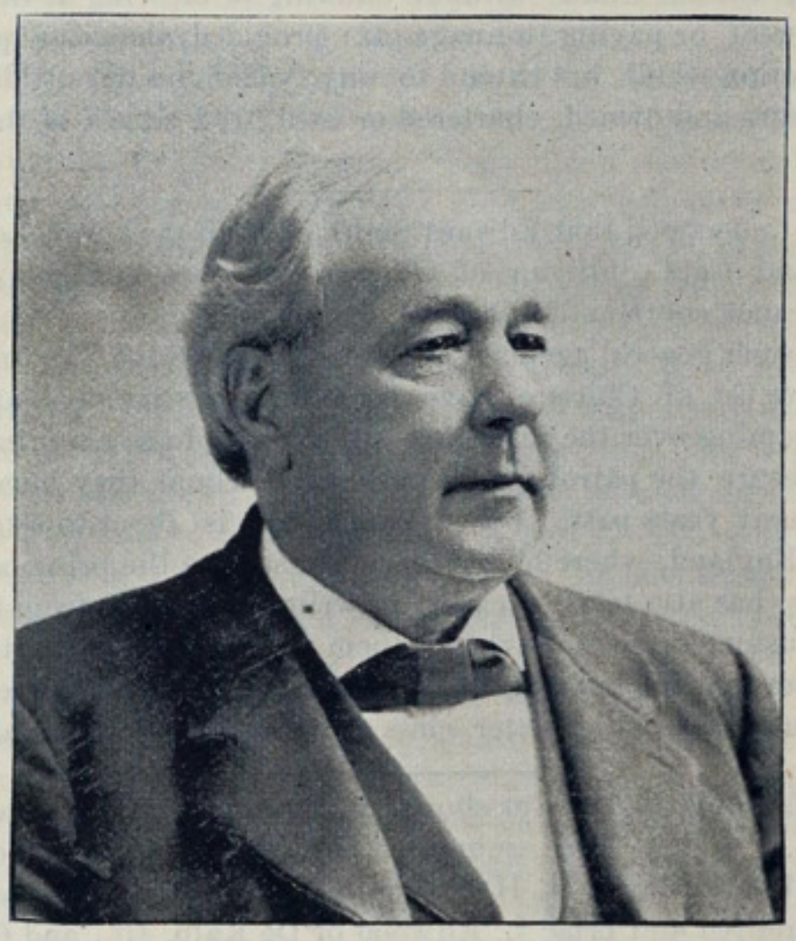
Publications.

Two of W. Clark Russell's best sea stories—and he has written several very good ones—are "What Cheer" and "The Lady Maude." "What Cheer" is a book of over 500 pages of thrilling descriptions of shipwreck, meeting fire at sea, etc. It treats of the life of the boatmen of Deal, England. Deal luggers are famous as staunch sea boats and their pilots are celebrated men. In "The Lady Maude" the author also shows a very good knowledge of the sea. This story is based on a cruise in a yacht from England to the West Indies, taken by a wealthy Englishman, who was seeking health for his wife, for whom the voyage was planned. A Geordie captain was depended upon for the success of the undertaking and the exciting tale of shipwrcek is the outcome of the captain's ignorance of the sea. These books are from R. Fenn & Co., New York.

Another of the small books in Charles Griffin & Co.'s nautical series, referred to in the last issue of the Review, has been received from the J. B. Lippincott Co., Philadelphia. It is an elementary manual of seamanship by an English writer, as are all of the series, but as it is designed as an introductory text-book for beginners, not pretending to complete their nautical education, there is more in it to interest young men aboard lake vessels than would be found in any of the publications of a higher class that deal with the science of navigation, etc. Among subjects treated in the book are: Ship building and parts of a vessel; ropes, knots and splicing; gear, lead and log; rigging, anchors, etc.; sails and sail making; handling of boats under sail; signals and signaling, and rules of the road.

Capt. George Warner.

Announcement of the death of Capt. George Warner, which occurred at his home in Cleveland, Saturday, was received with profound sorrow and regret. His death will be mourned by a wide circle of friends throughout the great lakes who have known him long and intimately. A characteristic worthy of special recognition in the life of Capt. Warner, who had been an honored citizen of Cleveland for full half a century, was his sturdy integrity. He always asserted with force and tenacity anything that he thought to be right, and was ever faithful in matters entrusted to his direction. His valuable services



in the Cleveland city council, and as harbor master under two administrations of city government, have been commended in the highest terms on numerous occasions by the commercial interests of the city. Without the advantage of an early education, he yet, by his untiring industry and native ability, rose to an influential position. He was public-spirited in a large sense and took a great interest in lake shipping matters generally.

Beginning life as a cabin boy at sea when only eleven years of age, he readily gained a knowledge of seamanship that admitted of advancement to the command of sailing vessels shortly after taking up a home in Cleveland in 1847. He followed the lakes until 1868, when, under the name of Pinnington & Warner, he established a vessel brokerage business in Cleveland. This firm was afterwards changed to Warner & Becker and still later to Warner & Co.

Ohio Coal Railway Settlement.

The warring coal and ore railways of Ohio, all of which suffered heavy losses by a competition of rates during the past year for what they regarded as their share of a business that did not exist, have again entered into an agreement, and it is announced once more that rates for carrying coal from the mining regions of Ohio to lake ports for shipment to the northwest are to be strictly maintained. In the agreement, which is to be passed upon this week by the Ohio Coal Traffic Association, the allotments are as follows: Toledo & Ohio Central, 16.40 per cent.; Wheeling & Lake Erie, 13.44 per cent.; Cleveland, Lorain & Wheeling, 12.97 per cent.; Columbus, Sandusky & Hocking, 12 per cent.; Baltimore & Ohio, 10 per cent., and Toledo, Walhonding Valley & Ohio, 7 per cent. It will be seen that the Columbus, Sandusky & Hocking, which maintained its claim for 15 per cent., and for some time stood in the way of a complete agreement, is contented with 12 per cent., but there is a provision by which it is allowed to carry 1½ per cent. additional, so that the amount it asked at the previous conference is reduced but 1½ per cent. It must, however, do so, as the agreement says, "by fair means." This is explained to mean if it lives up to the letter of the agreement, and still obtains the 1½ per cent. of business in excess of the regular allotment, the loss will be born pro rata by all the other six lines. The agreement, if adopted by the executive committee of the Ohio Coal Traffic Associaiton, is to be operated one year.

Against Foreign-Built Yachts.

A feeling in ship building circles adverse to wealthy Americans who have gone to the Clyde for costly steam yachts has resulted in the passage of an act which aims to debar these yachts from privileges that have been generally accorded to pleasure craft under the customs regulations. The act, which has passed both houses of congress, is now in the hands of the president, and will undoubtedly be signed before the Review is in the hands of its readers. It amends section 4,216 of the revised statutes so as to read as follows:

"Yachts belonging to a regularly oganized yacht club of any foreign nation, which shall extend like privileges to the yachts of the United States, shall have the privilege of entering or leaving any port of the United States without entering or clearing at the custom house thereof or paying tonnage tax; provided, that the privileges of this section shall not extend to any yacht built outside of the United States and owned, chartered or used by a citizen of the United States."

It is understood that Edward Smith of Buffalo, Capt. La Salle of Duluth and Capt. Sullivan of Chicago, who are engaged with the new insurance combination, are all to work on salaries. As might be expected, such general agencies as C. A. Macdonald & Co. and C. W. Elphicke & Co. of Chicago have been fully awake to changes that are now coming over the insurance situation and are planning to care for and secure the patronage of customers, whom they have had for a great many years past. David Vance, who is about to return from a visit to England, where he has been consulting the principals of his companies, has also taken occasion to write personally from the other side to customers here, advising them of his plans. In the end it would seem that the outcome of the whole matter will be cheaper and better insurance for the better class of vessels, both wood and steel.

A deficit of $349,399 was shown in the annual report of the Illinois Steel Co., which was submitted at the annual meeting in Chicago, Wednesday. H. H. Porter and J. C. Morse, directors of the company, retired and Isaac L. Ellwood of De Kalb, Ill., and Cornelius C. Cuyler of New York, a member of the firm of Cuyler, Morgan & Co., were chosen to succeed them. H. A. Gray resigned as secretary and treasurer, and William A. Green, the former assistant secretary, was made secretary, and William H. Thompson, the former cashier of the company, was made treasurer.

Dispatches from Washington announce that, notwithstanding the overwhelming importance of testimony favorble to an appropriation for a steam vessel to deliver mail on the Detroit river, the house committee on post offices and post roads has inserted in the post office appropriation bill a clause providing that the mail must be delivered in rowboats. The measure is not as yet before the house, and must, of course, be passed upon also by the senate, so that there is no telling what the outcome in the matter will be.

Trying to Scare Underwriters.

Someone who is interested in insurance on the lakes, and who evidently has an axe to grind, is trying to scare the principals of companies that may be intending to engage in the lake business during the coming season. Fairplay of London, which is one of the most influential of the shipping journals in England, prints the following from a New York correspondent:

"Recent articles from this side that have been reproduced or noticed in your paper are apparently intended to encourage English underwriters to continue lake hull insurance, and it is not to be wondered at that the hull owners should desire the benefits of the English hull form of policy and compel its acceptance, if possible, by such of the American underwriters as are weak enough to attempt to enter this dangerous field under conditions that preclude any possibility of profit, but with a chance of loss almost unlimited. The past season has been unusually free from serious disaster, but we learn from underwriters who watch their account closely that the endless claims for general average, particular average, and collisions, together with the one or two more important losses, have entirely consumed the premium, and that the result will probably show a small balance on the wrong side. The very tyro in underwriting should appreciate the dangers attendant upon an account where the 'inevitables and incidentals' cause the premium fund to melt like snow before a summer sun, leaving nothing to provide for the enormous and ever increasing collision hazards or for disasters that are sure to follow a severe gale on the lakes, when every underwriter writing a general account is sure to have very large interests at stake at one time, and in one general locality, and subject to one general peril, oftentimes of great severity. Lake vessel owners have brought the matter of hull insurance to a fine art, and they may be depended upon to work the English market so long as it is workable."

As the result of a statement from the secretary of the treasury, claiming that under the present law, which allows steamboat inspectors traveling expenses at 8 cents per mile, the government has been overcharged to the extent of some $22,000, both houses of congress have passed a bill reducing the rate to 5 cents a mile. The president will undoubtedly sign the bill, if he has not already done so. The new law provides that "every inspector shall be paid his actural and reasonable traveling expenses or mileage, at the rate of 5 cents per mile, incurred in the performance of his duties, together with his actual and reasonable expenses for transportaton of instruments, which shall be certified and sworn to under such instruction as shall be given by the secretary of the treasury."

Another combination of steel interests is announced from Pittsburg. The Oliver-Snyder Steel Co. was organized there, Wednesday, with a capital stock of $1,500,000. This company is formed by the consolidation of the Hainsworth Steel Co. of Pittsburg, the Edith blast furnace of Allegheny, Rosena furnaces of New Castle, the coke and coal property of the Oliver Coke & Furnace Co. and the Oliver-Hainsworth interest in the Carnegie-Rockefeller ore properties on the Mesabi range. Henry W. Oliver, formerly president of the Oliver Steel Co., is chairman of the board of directors, W. F. Snyder is president, George L. Brown, secretary, and James Collerd, treasurer.

It was officially stated in the house of commons recently that the British government pays Delaunay, Belleville & Co., French owners of patents on the Belleville water tube boilers, a royalty of $26,250 on boilers in each of the two big cruisers Powerful and Terrible. This is equal to more than $1 per horse power. These boilers are now further advertised through the intention of the British government to fit them to a yacht that is being designed for Queen Victoria. Engines of the yacht are to be of the four-cylinder four-crank type, so as to secure the minimum of vibration, and the speed of the vessel will probably be about 20 knots.

A neat vest-pocket note book, with about 20 pages of tables and other information pertaining to iron and steel welded tubular goods of all descriptions, has been issued by the Syracuse Tube Co. of Syracuse, N. Y.

Mather & Wood, of Port Jefferson, L. I., will build a 145-foot wooden passenger propeller for the Bridgeport & Port Jefferson Steamboat Co.

The New Chief of Army Engineers.

John M. Wilson of the army engineer corps, who has just been appointed chief engineer and advanced to the rank of brigadier general, is well known on the lakes, as he was for several years in charge of river and harbor improvements on Lake Erie, with headquarters at Cleveland. As engineer lately of the northeast engineering division, which comprises the New England states, NewYork, a portion of New Jersey and the harbors of Lake Erie, he has also been identified with lake interests; and he is known to vessel men in all parts of the country,

also, on account of his services in the light-house institution. Gen. Wilson was born in Washington, D.C., in 1837. He graduated from the military academy in 1860, and his first service was in the artillery and ordnance departments. He was actively engaged throughout the war of the rebellion, and made a most creditable record. He was present at the battle of Bull Run, assisted in the defenses of Washington, was in the Peninsular campaign, and took part in the battles of Maryland campaign in 1862, during which period he was transferred to the corps of engineers, with which branch of the service he has since been identified. After a short term of service at the military academy in 1863, he was assigned to the defense of Baltimore, Memphis, Natchez, and Vicksburg. Subsequently he was engaged in work at Ship Island, Miss., and New Orleans. Gen. Wilson received several brevets for gallant service during the war. From 1871 to 1875 he had charge of works at Forts Ontario and Niagara, and of harbor improvements on Lake Ontario and the St. Lawrence. In 1875 he was transferred to the far northwest and superintended the improvements of the Columbia river and other works in Washington and Oregon. From 1882 to 1886 he was assistant to the chief of engineers at Washington, at the conclusion of which period he was ordered to California. President Cleveland, at the beginning of his first term, placed Gen. Wilson in charge of public buildings and grounds of the District of Columbia. In 1889 he was appointed superintendent of the military academy, which office he held four years. When Mr. Cleveland was again made president, in 1893, Gen. Wilson was again summoned to Washington to have charge of public buildings and grounds, and, in addition, the northeast division of the United States. During his incumbency at Washington the Army Medical Museum has been built, and the Washington monument and other important works completed. Gen. Wilson received the degree of L.L. D. from Columbian University, Washington, in 1890. He is a member of the American Society of Civil Engineers, and past president of the Society of Civil Engineers of Cleveland.

Ship Yard Matters.

The Union Dry Dock Co. of Buffalo finds itself in a peculiar position. It has practically in hand an order from the Union Steamboat Co. for a duplicate of the Ramapo, providing the vessel can be finished so as to go into service this season, by August or September. But with all the repair work and the enlarging of the company's dry dock, it is not certain yet that the boat can be delivered. If the Standard oil barge is launched Saturday and no bad weather comes on soon, the chances are favorable for the building of the second steamer. Excavation to the full depth has been made at one end of the dock, although a boat was let out only a week ago. With the completion of this work, Buffalo will have a dock large enough to accommodate all vessels under 400 feet length. The change will also afford a space of 5 feet between the bottom of a vessel in dock and the bottom of the dock. This will facilitate repair work greatly, as with this space the men will not be cramped in their work. A force of about seven hundred men are now at work in this yard. It is proposed to name the first of the new Union line steamers Starucca, after a vessel of the line that was lost on Lake Superior several years ago. If the second steamer is built she will very probably be named Tuxedo. The Union company has also secured a contract for what will be one of the best steel tugs at any Lake Erie harbor. It is for the Erie Tug Co., Erie, Pa., and is to be 87 feet over all, 24 feet beam and 11 feet deep. The boat is to be all of steel—deck, houses, everything. She will have a Trout compound engine, of 16 and 32 inches diameter of cylinders by 26 inches stroke. She will have a Worthington independent condenser. Steam will be furnished at 150 pounds pressure by a 10 by 13-foot boiler, which will be built by the Lake Erie Boiler Works. Another small vessel to be built at this yard is a steel sharpie, something new in the lake yacht fleet. The order for this boat is from Mr. F. S. Thorne. She will be 48 feet long by 10 feet beam and will carry for ordinary cruising a jib, mainsail and jigger. The model was made by the dry dock company.

A request made upon the Detroit Dry Dock Co. for information as to whether a contract has been received for the proposed car ferry barges that are to run from Toledo to Detroit and Windsor, has not been answered, and it is therefore quite probable that the scheme is as yet in an initial stage. E. H. Moreton of Detroit and Wm. Jacobson of Chicago, the latter of whom was one of the promoters of the car carrying barge line on Lake Michigan between Chicago and Peshtigo, are the projectors of the enterprise. They claim that officials of the Grand Trunk Railway are entirely in accord with their plans and that they have made arrangements for a connection with one of the principal coal railways running into Toledo. The barges which they propose to build are each to be of oak, 350 feet long over all, or 27 feet longer than the Lake Michigan ferries; 60 feet beam, or 4 feet wider than those, and 12 feet deep. Each will have four tracks capable of holding twenty-eight cars, which will make them the largest car ferry barges in the world. They will be fitted with all the latest improvements for craft of that kind and will cost $75,000 each. If the project goes through a tug will be chartered for next season to tow the boats, but after that one will be built specially for the purpose.

Association of Dredging Contractors.

Although full details as to the proposed operations of the Dredge Owner's Association of the Great Lakes have not as yet been made public, a representative of the Review has seen a copy of the constitution of the organization, and it can be said positively that it is not a pool or combination to control prices on public works or any other dredging contracts that may be undertaken on the lakes, to which the association is confined. It is expected that in a future issue the full scope of the association will be outlined from official sources of information. At the meeting in Chicago on Tuesday last the following officers were elected: President, E. J. Hingston of Buffalo; vice-president, C. S. Barker ,Duluth; executive committee, E. J. Hingston of Buffalo, C. S. Barker of Duluth, Fred Davis of Chicago, J. B. Breyman of Toledo, R. J. Cram of Detroit, Harvey Hubbell of Saginaw and Thomas Hickler of Sault Ste. Marie.

Mr. L. C. Hanna, who is in full charge of the management of affairs of the firm of M. A. Hanna & Co., denies absolutely and entirely everything that has been said about Mr. M. A. Hanna or the firm of M. A. Hanna & Co. being conected with a scheme to build a steel plant at Buffalo. The whole thing is simply a newspaper yarn.

MARINE REVIEW

DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 409 Perry-Payne building, Cleveland, Ohio, by John M. Mulrooney and F. M. Barton.

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The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1.000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,034.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

	Number.	Gross Tonnage.
Steam vessels	1,792	924,630.51
Sailing vessels and barges	1,125	354,327.60
Canal boats	416	45,109.47
Total	3,333	1,324,067.58

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30. 1891	204	111,856 45
" " " 1892	169	45,968.98
" " " 1893	175	99,271.24
" " " 1894	106	41,984.61
" " " 1895	93	36,352.70
" " " 1896	117	108,782.38
Total	864	444,216.36

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (*From Official Reports of Canal Officers.*)

	St. Mary's Falls Canal.			Suez Canal.		
	1895*	1894	1893	1895	1894	1893
No. vessel passages	17,956	14,491	11,008	3,434	3,352	3,341
Tonnage, net registered	16,806,781	13,110,366	9,849,754	8,448,383	8,039,175	7,659,068
Days of navigation	231	234	219	365	365	365

* 1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about ½ per cent. of the whole, but largely in American vessels.

Some misinformed newspapers, and even two or three of the marine publications, have been claiming that a bill supported by Senator Frye proposes to restore flogging in the merchant marine. The section in question is section 18 of H. R. 2,663, which is as follows: "Every master or other officer of any American vessel on the high seas, or on any other waters within the admiralty and maritime jurisdiction of the United States, who from malice, hatred or revenge, and without justifiable cause, beats, wounds, or imprisons any of the crew of such vessel, or withholds from them suitable food and nourishment, or inflicts upon them any cruel and unusual punishment, shall be punished by a fine of not more than $1,000 or by imprisonment not more than five years, or by both." The amendment proposed by Senator Frye strikes out the words "from malice, hatred or revenge." That is the only change made by it in the present law. The present law requires the sailor to prove, in case of an assault, not only that it was without justifiable cause, but also that the motives prompting the assault were "malice, hatred or revenge." It is almost impossible for the sailor to prove one of these motives. By striking them out of the section, Senator Frye's bill makes it possible for a sailor to secure conviction when assaulted by an officer, under this section, which is now impossible.

Although it is quite probable that the Consolidated Lake & Canal Co., or some other power that intends to use the improved New York state canals, was back of the movement that resulted in an appropriation of $9,000,000 being secured for enlargement of the canals, the position of some of the Buffalo newspapers just now, in opposition to corporations of more than $50,000 capital engaging in canal commerce, is certainly of a suspicious kind. Buffalo is, and always will be, opposed to any movement that threatens advantages derived from the transfer of freight at that point, but its elevator combine, with excessive terminal charges, is gradually meeting with strong opposition. Transportation charges by lake have been reduced to a point that is simply amazing, but terminal charges (transfer, storage, commissions, etc.), especially at Buffalo, have not fallen to anywhere near the same extent. This is one of the drawbacks of the present situation as regards lake transportation, but it is acting now against the railways, and against Buffalo too, in the big export business in grain, flour, etc., from the west and northwest that is going to southern ports instead of taking the more direct central route to New York through Buffalo.

It is certainly unfortunate that political differences in Ohio seem to stand in the way of the appointment of M. A. Hanna to the United States senate to succeed John Sherman. This matter is not an Ohio affair. If the business men of this country, and especially those connected with the great iron industry, and the various branches of lake commerce that are largely dependent upon this industry, could have the ear of Gov. Bushnell, they would tell him that he should rise above local questions in Ohio and appoint Mr. Hanna to the senate to represent in that body a president who was elected purely and simply on questions relating directly to the business affairs of the nation. Everybody connected with lake commerce is especially interested in this matter, and there would be no impropriety in commercial bodies or individuals in all parts of the lakes presenting their views to the governor of Ohio.

The announcement from Washington that the appropriations committee of the house has decided to include, among other items in the sundry civil appropriation bill for continuing contract improvments, an appropriation of $400,000 for Cleveland harbor, is a matter of importance to all places on the lakes that were accorded recognition under the continuous contract system in the last river and harbor bill. It will be recalled that the appropriations committee was not disposed to make appropriations for continuous contract improvements until the contract for the work had actually been let. Cleveland is one of the places where a contract has not as yet been entered into, and had the committee adhered to its first plan, the improvements at this port, as well as at others where contracts have not as yet been let, would have been delayed for another year.

In view of the general depresssed condition of the iron industry, stock holders of the Chandler Iron Mining Co., who have just been paid a dividend of $10 a share, certainly have reason to feel thankful. It is understood, too, that this does not represent the full earnings of the company last year, and that with the mine charged off the company's books, or rather put down nominally at $1, there are still assets sufficient, in a large surplus and other substantial items, to quit business and pay $35 a share. The stock is selling at about $40. But the Chandler is an exception among Lake Superior iron mines.

Members of the United States board of supervising inspectors of steam vessels, which has been in session at Washington for several dasy past, are: Jas. A. Dumont, president; John Birmingham, first district; Geo. H. Starbuck, second district; W. H. Murdaugh, third district; James O'Neal, fourth district; W. R. Tibbals, fifth district; James N. Thompson, sixth district; E. P. Chancellor, seventh district; John H. Galway, eighth district; M. Galvin, nineth district; Mathew O'Brien, tenth district.

Again it is announced that the advocates of the Nicaragua canal scheme have suspended operations. They are satisfied that the passage of their bill would be doubtful in the senate and impossible in the house, and they have given up the effort as far as the present congress is concerned. But they will, of course, be heard from again when the new administration comes into power.

Artificial Draft.

Editor Marine Review:—Replying to the inquiry of Mr. C. W. Whitney, N. Y., C. S. for the Globe Iron Works Co., as to why the Howden hot draft system was removed from the American line steamers Berlin and Paris, we beg to say that the Howden system was removed from the old steamer Berlin, where it had done good service, and the Ellis & Eaves substituted, in order to determine which system was the best to apply to the two great passenger steamers, St. Louis and St. Paul, which the company then contemplated building, and the fact that these ships are fitted with the Howden system is perhaps a sufficient answer to the inquiry. The Paris was originally fitted with the closed stoke hold system, and afterwards with the Howden system, which was not an improvement, owing to the design of the boilers not being adapted for that system, and she is now worked on the closed stoke hold system as orignially constructed. We are pleased to note that where the Serve tubes did so well in the experimental plant they were fitted with our retarders.

Dry Dock Engine Works.

Detroit, Mich., Feb. 8, 1897.

Effect of the Lakes on the Iron Industry.

In an article discussing the enormous value of lake commerce and the great benefits of lake waterways, especially in their relation to the iron industry, the Engineering and Mining Journal of New York says:

"Probably no expenditure ever made by the government has been of greater benefit to the nation than the money employed in improving and maintaining navigation on the great lakes. It is the lake waterway which has made the development of the iron ores of Michigan, Minnesota and Wisconsin possible, and has enabled the iron ranges of the Lake Superior region to furnish the industry in the United States with a supply of iron ores, without which its growth would have been far less rapid than it has been. The copper industry of Michigan has also been very greatly benefited. Taking these two great interests alone, the return has been far greater than the amount invested, to make no mention of the agricultural industries of the west. The Suez is the only great maritime canal at all to be compared with the Sault canal, which connects Lake Superior with the lower lakes. During the last year for which figures are available the Suez canal passed 3,352 vessels, with a total registered tonnage of 8,039,105, or 9,110,313 tons less than were recorded at the Sault during 1896. The average rate of freight on tonnage passing Detroit, which is practically the great bulk of lake traffic, is estimated at 0.085 cent per ton-mile—probably the lowest price for which freight is transported any where in the world. In this country the railroad rates are less than in any other except British India; but about the lowest charge known here is that on Pocahontas coal to tidewater, which is not far from 0.25 cent, or three times the lake rate. The average trunk line rate on heavy through freight is 0.45 to 0.60 cent, or from five to seven times the lake rate. The effect of this extremely low rate, on the iron ore industry especially, can be estimated only by the fact that the shipments have reached a total of 10,000,000 tons a year. Perhaps these figures should not surprise us when we remember that over 60 per cent. of the iron ore supply of the United States last year came from the Lake Superior mines and that nearly all of it took the water route to market. Taking the rates paid on this ore by lake, we find that if the ores had been carried by rail at the usual average of the roads west of Cleveland and the other lake ports, the charges on this ore would have exceeded the freight actually paid by some $2.50 per ton; that is the cost of every ton of pig iron made from lake ore would have been increased by $4. These instances alone are sufficient to show the importance of the lake waterway, to both the mining and manufacturing industries; and others equally striking could be given did space permit."

System of Steamship Signals.

A patent has been taken out by Mr. J. T. Dawes of Mold, North Wales, for the purpose of enabling steamships to ascertain the engine speed, whether ahead or astern, of each other at night when approaching one another. This is done by a combination of electric lights operating as follows: Four white and four green lamps are located at the masthead or other suitable position in the ship, so as to show forward, and are connected by separate wires and switches to the engine room signalling apparatus, so that when "full speed ahead" is shown the four white lights will be in action; when full speed astern is indicated the four green lights will be illuminated; whilst two white lights, or two green lights, will be shown, according as the engines are moving, half speed ahead or astern; all connection being shut off from the lamps when the engine signalling lever indicates that the engines are stopped. A further improvement consists in constructing the lamps to show different colored lights astern, say all red. This can be done by having openings at the backs of the lamps covered by red glass. It is claimed that the rays of light so projected being localized appear as mere narrow beams, and are easily distinguishable from the ordinary ship's regulation light. It is also claimed that owing to the nature of the lights they possess greater penetrative power than the ordinary twenty-point arc mast-head lamps, and will, therefore, be of considerable value in fog. While the theory of the patentee may claim consideration for the scheme, it is one which we fear in practice will find no supporters.—Liverpool Journal of Commerce.

The Blue Book of American Shipping answers questions that arise daily in every vessel agent or owner's office. If the book is not satisfactory it costs nothing, as the money will be returned. Order at once, No. 409 Perry-Payne building, Cleveland.

Tragedy of the Engine Room.

An exceedingly interesting story is told by a delegate from New York city to the national marine engineers' convention, now in session in this city. The chief engineer of the ill-fated Commodore, which was wrecked off the coast of Forida several weeks ago, was an active member of the New York city local organization. He was a young man of good character and ability, and his love of adventure induced him to offer his services to the Cuban junta. His services were accepted, and he was ordered as chief engineer of the Commodore. Against his protest an assistant was assigned him whom he knew nothing about, and who had not belonged to any local marine engineers' association. Upon the pretext of being ill, the assistant engineer of the Commodore shirked work for several days before the ship went to sea, so that when the vessel took her departure the chief engineer was pracically exhausted, there being only two mates and two engineers in the list of officers.

"After the Commodore left harbor," says the narrator, "the assistant engineer, upon the plea of continued illness, kept the chief on watch for the greater part of the day. At midnight, after leaving port, the assistant volunteered for duty, and when things were turned over to him everything about the machinery was working well. The chief engineer had thoroughly tested all the pumping appliances before leaving harbor, and they were found to work excellently. Particular attention had been given to the adjustment of the inspirators for clearing the bilges of water. Within two hours from the time the chief engineer had been relieved he was awakened by one of the firemen, who told him that the ship was sinking, and that practically everything in the engine room had become disabled. The chief immediately went to his station, and found that the assistant engineer, who had been a beach-comber, and an ex-convict, and whose services had been secured because they could be obtained cheaply, had practically wrecked the machinery.

"After a vain attempt to put things to rights the vessel was abandoned, the deck officers taking to the boats, and the engineer force being left to find safety on a raft. The captain of the Commodore gallantly stood by the raft, and after battling with the storm for thirty hours reached one of the Florida keys, but in the attempt to affect a landing from the raft all of the engineer force were lost. While the raft was being towed, the men from the captain's boat carefully kept watch over it, and a short time after the crew left the vessel a scuffle took place on the raft, which resulted in the chief engineer and one of the firemen throwing the traitor into the ocean. It is unnecessary to state that the leaders of the Cuban junta have now learned at a great cost that not only ability but integrity and character are required even in the engine rooms of filibustering steamers.

"Weakened by continuous work and exhausted by his duties in charge of the raft, the chief engineer of the Commodore lost his life in the surf in attempting to make a landing. His comrades in the NewYork association of marine engineers, in connection with friends of the Cuban cause, propose to make some substantial recognition of his excellent services in fitting out the Commodore, and his pluck in sealing the doom of the traitor who had betrayed his ship. The unfortunate fate of the Commodore will probably be a practical object lesson to the naval officials of even great nations in teaching them that naval warfare has greatly changed during the past decade, and that the man below as well as above the protective deck is an important factor."

The marine engineer delegates from New York city declare that the story as told above was from the official statement as furnished by President Palma of the Cuban junta in New York city. The committee of New York marine engineers distinctly told him that the organization would boycott every filibustering steamer starting from the coast unless the exact facts in regard to the death of Chief Engineer Hartigan were furnished them. The story has never been in print, and from the earnestness and sincerity of the Cuban leaders the New York engineers are convinced that the tale is a true one.—Washington Star.

A Very Desirable

train to take when going to New York is Pennsylvania No. 6, leaving Union station 1:40 p. m. daily and from Euclid avenue 1:50 reaching New York 7:40 next morning. Pullman sleeper through without change. Supper served in dining car. Apl 15

Around the Lakes.

Capt. Jeremiah Coleman has been transferred from the steamer Selwyn Eddy to the Penobscot of the same fleet.

A bill authorizing the establishment of a pierhead light at South Milwaukee, Lake Michigan, has passed both houses of congress.

A portion of the sunken barge Sumatra, which threatened passing vessels at Milwaukee, has been blown up by order of the United States engineer.

James McBrier of Erie has gone to the rivers of Africa for another name for one of his vessels. He has changed the name of the steamer Emily P. Weed to Savona.

Owners of the Canadian steamer Sir S. L. Tilley report that she struck last fall, when drawing 14 feet of water, about a half mile from the outer light and on the alignment of the range lights at Port Colborne, Lake Erie entrance to the Welland canal.

Capt. C. E. Benham, who is a candidate for the position of collector of customs at Cleveland, has the endorsement of practically everybody interested in vessels, as well as the coal and ore business, at Cleveland, Conneaut, Lorain, Ashtabula and Fairport.

Officers of the Mitchell Steamship Co. of Cleveland, elected recently, are: John Mitchell, president and manager; Phillip Morris, vice-president; F. Sauber, secretary; Alfred Mitchell, treasurer; Thomas Fitzpatrick and H. S. Hills, directors with the officers.

The Minnesota legislature is considering a bill that makes it unlawful for any railway to accept a greater sum for forwarding, delivering or transferring iron ore than 7 mills per ton per mile. The measure is evidently aimed against the railroads controlled by the Minnesota Iron Co. and John D. Rockefeller, and is prompted by owners of undeveloped iron mining properties.

A few of the old-guard engineers and friends of Alonzo Arnold, chief engineer of the Minnesota fleet, are receiving invitations to celebrate his twenty-fifth wedding anniversay at Marine City, Mich., Feb. 12. He is one of the best known of lake engineers, holding his position as chief engineer of the largest fleet of steamers on the lakes by virtue of his practical experience. His first important work was in compounding the engines of the V. H. Ketchum, making an 11-mile boat of her as against 9 miles an hour before the change. Capt. Mallory, commodore of the Minnesota fleet, was in the Ketchum at the time.

It is understood that affairs of the American Steel Barge Co. will be conducted during the coming season just as they were in 1896, the vessels being operated in the office of Pickands, Mather & Co. Mr. L. M. Bowers, general manager of the Bessemer Steamship Co., was the representative of Mr. Rockefeller in the board of directors of the barge company, but he retired at the annual meeting held in New York, a few days ago, and will be succeeded by Mr. F. T. Gates, who has represented Mr. Rockefeller in all of his large transactions in the lake region, and who has, of course, been as much interested as Mr. Bowers in affairs of the barge company. Another change in the board of directors was the election of Howard A. Colby to succeed H. C. Rouse, who declined a re-election. Mr. Rouse himself had taken the place of Mr. Colby's father, the late Charles Colby. The other directors were all re-elected. Colgate Hoyt was re-elected president and treasurer, Mr. Samuel Mather vice-president and R. C. Wetmore secretary.

Although the Ship Masters' Association, when assembled in annual convention at Washington recently, adopted a resolution favoring the application to sailing vessels of rules similar to those of the steamboat inspection service, the executive committee of the Lake Carriers' Association is opposed to anything of the kind, and they so expressed themselves at a meeting held in Cleveland a few days ago. Capt. McKay read a letter from Secretary Keep of Buffalo, in which he stated that he had received a copy of a bill from Congressman Miner of Wisconsin, which provides for the inspection by the government of all sailing vessels of 700 tons or more, and that all officers on such vessels be licensed, which means that masters of sailing vessels would have to stand an examination of the kind that is now given to masters of steam vessels. This matter was to be considered by the legislative committee of the association in Buffalo. The Cleveland owners instructed Capt. McKay to say to the legislative committee that they were entirely opposed to such a proposition.

Trade Notes.

The contract for the new power station, to be erected for the New York, New Haven & Hartford Railroad Co. at Berlin, Conn., has been let to the Berlin Iron Bridge Co. of East Berlin, Conn. This building is 110 feet in width and nearly 200 feet in length, divided into two equal portions, one side to be used for a boiler room and the other for an engine and dynamo room. The engine and dynamo room is provided with a runway and a 35-ton traveling crane. The whole frame work is to be of steel, the side columns being enclosed by brick walls.

S. Oterio of the Central American Steamship Co. writes from New Orleans to H. G. Trout & Co. of Buffalo as follows: "The composition brass wheel, which you furnished in February, 1890, for my steamer Pixzeti, has proven to be the finest piece of work I have ever seen, and has given me entire satisfaction. After seven years continuous service the wheel looks better today than when we got it, as it has a smoother surface, and it appears to be good for twenty-five years more. We have nothing but the highest praise for the wheel and should we require others for any of our steamers we will surely remember you."

A note from Henry R. Worthington of New York regarding the big Chicago water works contract, recently secured, says that it will involve the construction of six vertical triple expansion direct-acting high duty pumping engines. This contract amounts to $437,600 and is the largest contract for water works pumping machinery ever placed in this country. The engines will each have a daily pumping capacity of 20,000,000 gallons against a head of 150 feet, and will be supplied with steam at a pressure of 140 pounds to the square inch. They will be of 530 horse power each. This company is also building three vertical triple expansion direct-acting high duty pumping engines for the city of Brooklyn, N. Y., under a contract amounting to $385,000. These latter engines each have a daily capacity of 20,000,000 gallons to be delivered against a head of 168 feet, and the steam will be supplied at a pressure of 135 pounds to the square inch, each engine being of 600 horse power.

Some time since the Review had an inquiry for names and addresses of concerns that built or furnished castings for marine railways. We are pleased to state that H. I. Crandall & Son, 100 Border street, E. Boston, Mass., is probably the largest concern of this kind in the United States. Business men in a number of the smaller lake ports have advocated the construction of dry docks, on the claim that dry docks will bring business to their towns. Marine railways are not nearly so expensive and will care for very large steamers or sailing vessels. One built at Mobile by this company has had its capacity increased from 800 to 1,300 tons. Plans for a railway capable of hauling out vessels of 3,000 tons have been furnished to North Sydney, Cape Breton, parties by Crandall & Son.

The sixth-order fixed white light heretofore shown from the tower on the bluff westward of Conneaut harbor, Lake Erie, has been discontinued and will, on or about March 1, be re-established in the structure recently erected on the easterly side of the west pier at the entrance to the harbor, and 815 feet S. by E. ½E. (true) in rear of the pierhead light. With the pierhead light this light will mark a range line parallel with the axis of the pier, to guide to the entrance between the piers.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes, Feb. 6, 1897:

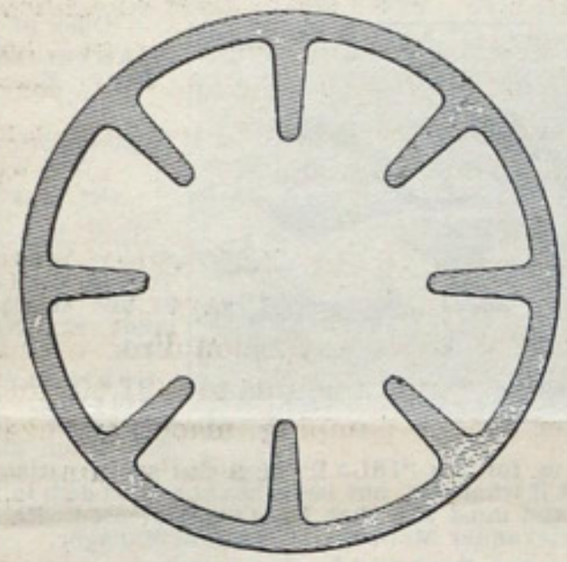
	Wheat, bushels.	Corn, bushels.
Chicago	11,953,000	6,755,000
Duluth	3,606,000	15,000
Milwaukee	305,000	4,000
Detroit	305,000	98,000
Toledo	1,097,000	872,000
Buffalo	1,698,000	112,000
	18,964,000	7,856,000

As compared with a week ago, the above figures show, at the several points named, a decrease of 219,000 bushels of wheat and an increase of 572,000 bushels of corn.

THE PRICE TO BE PAID FOR CARRYING ORE

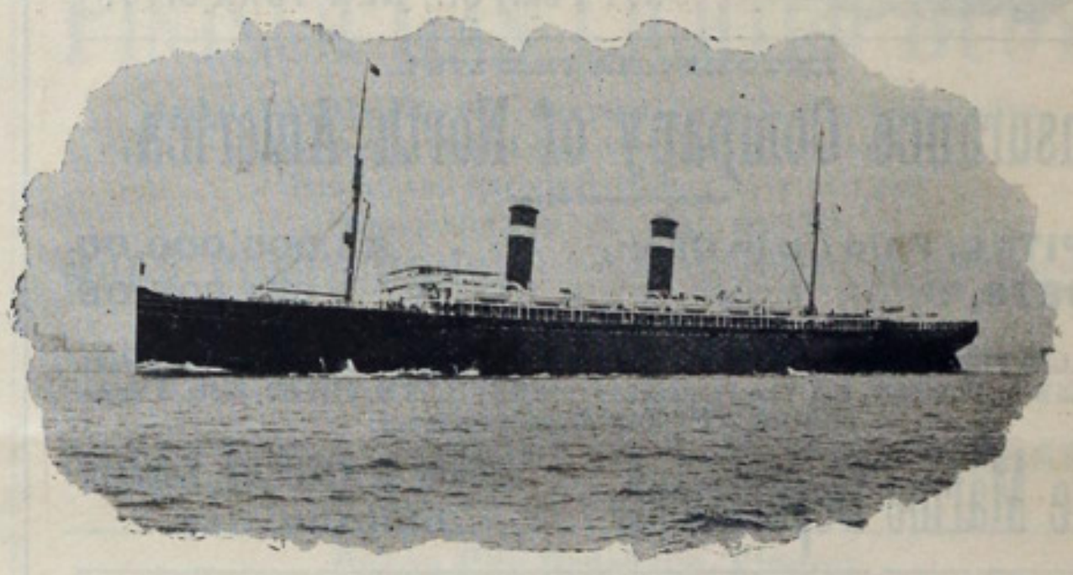
The coming season and the COST of carrying it will not be very far apart—so that the profit on next season's business may be represented largely by the amount of money that can be SAVED by the most economical operation of lake steamers.

? Do you want to increase the EARNINGS of your steamers ?
Have you any objections to CUTTING DOWN YOUR FUEL BILLS

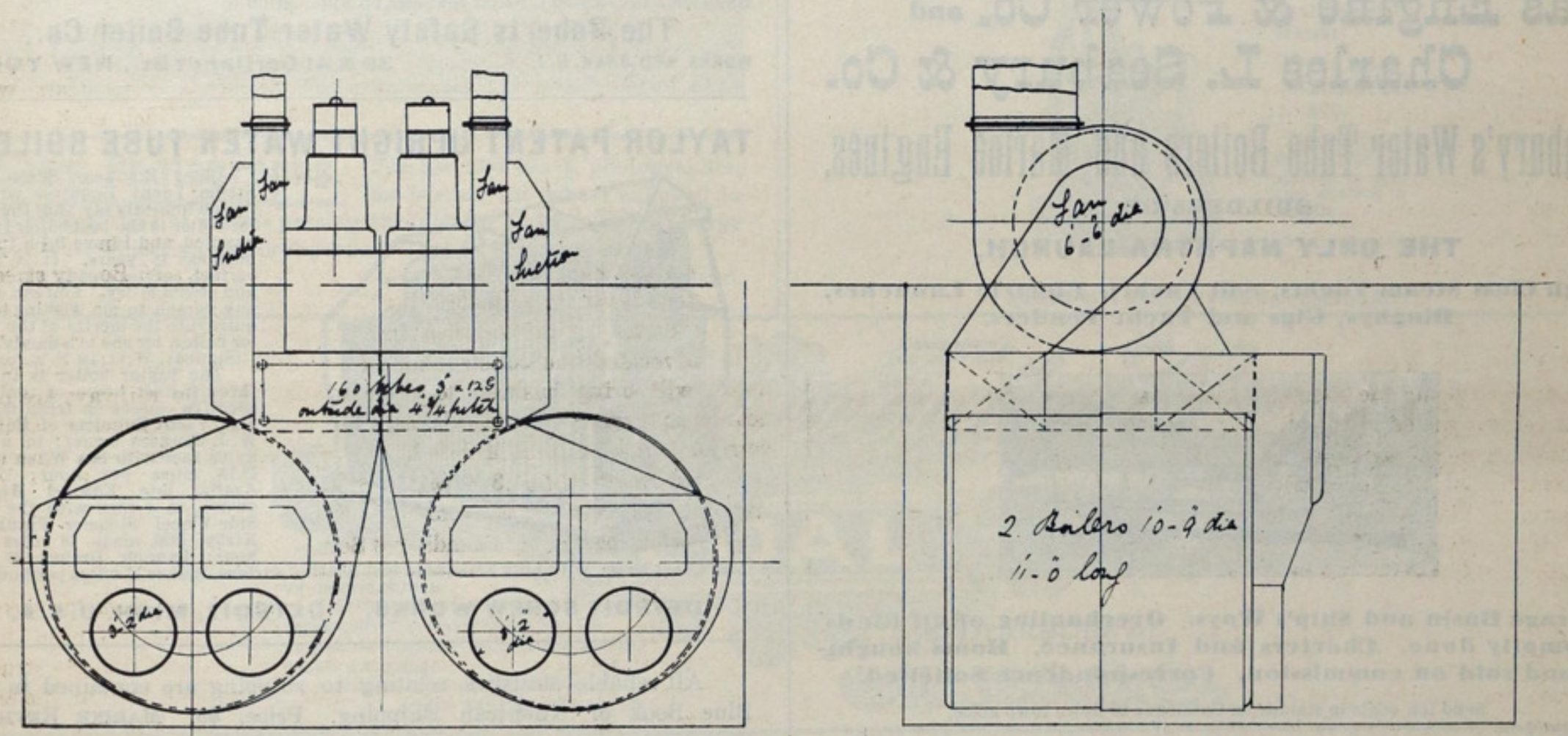


SERVE'S RIBBED TUBES.

Managers of the Trans-Atlantic lines are watching the performance of the steamer on the right, because she burns only 1.22 lbs. coal per horse power per hour. Her boilers are fitted with the tubes shown on the left.



AMERICAN LINER ST. PAUL.



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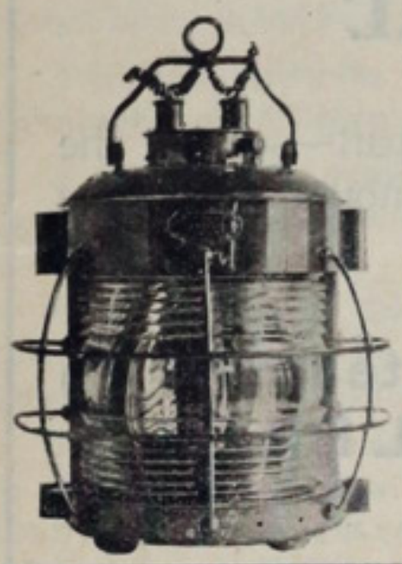

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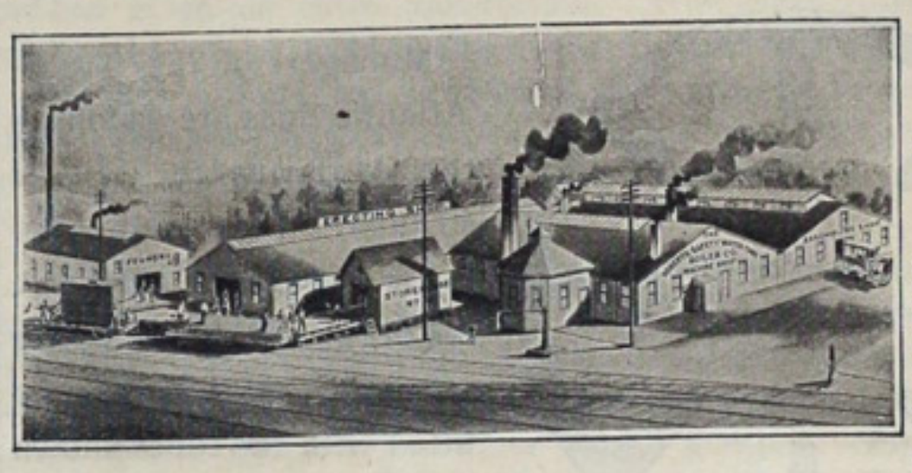

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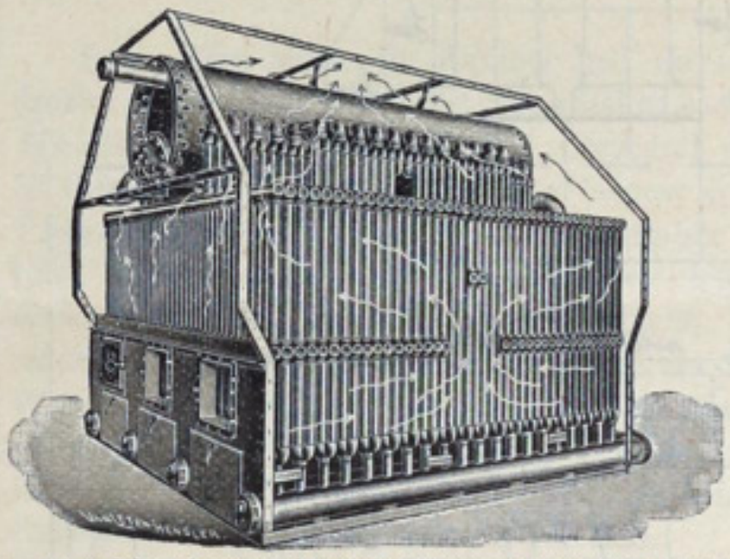

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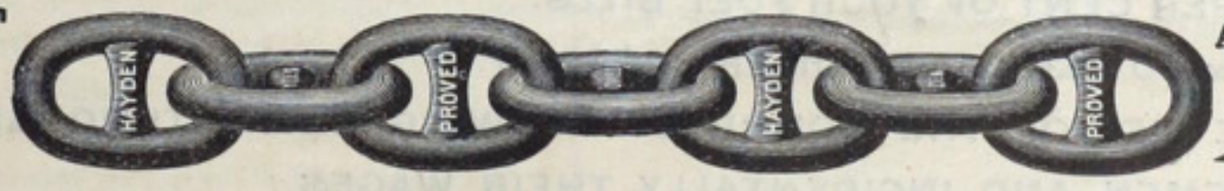

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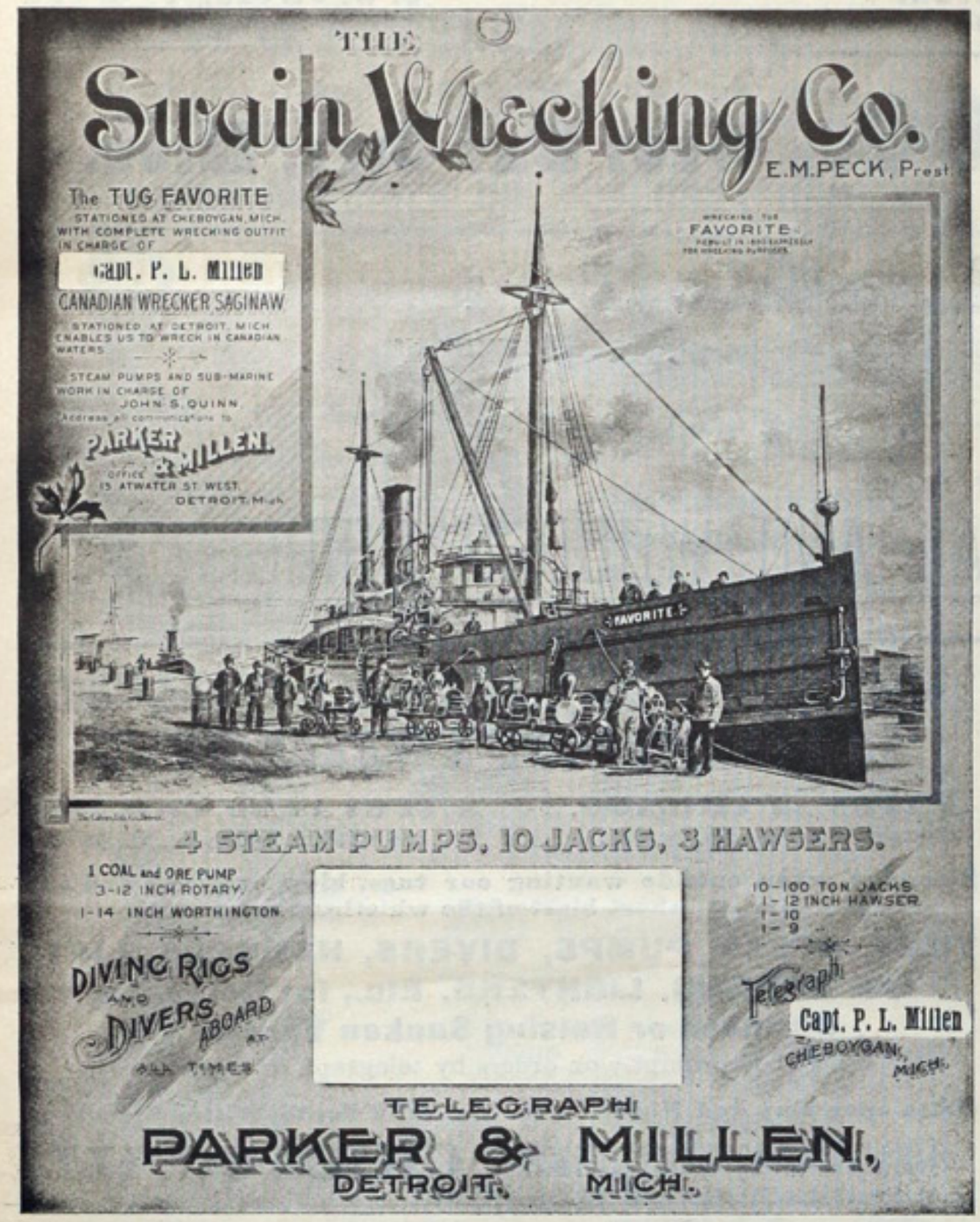

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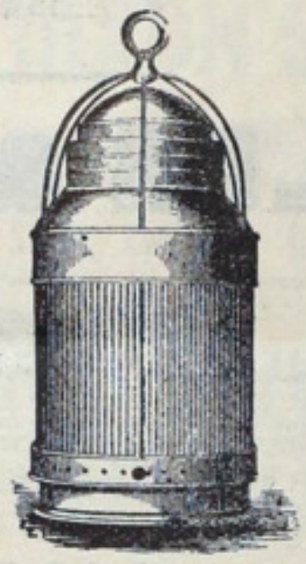

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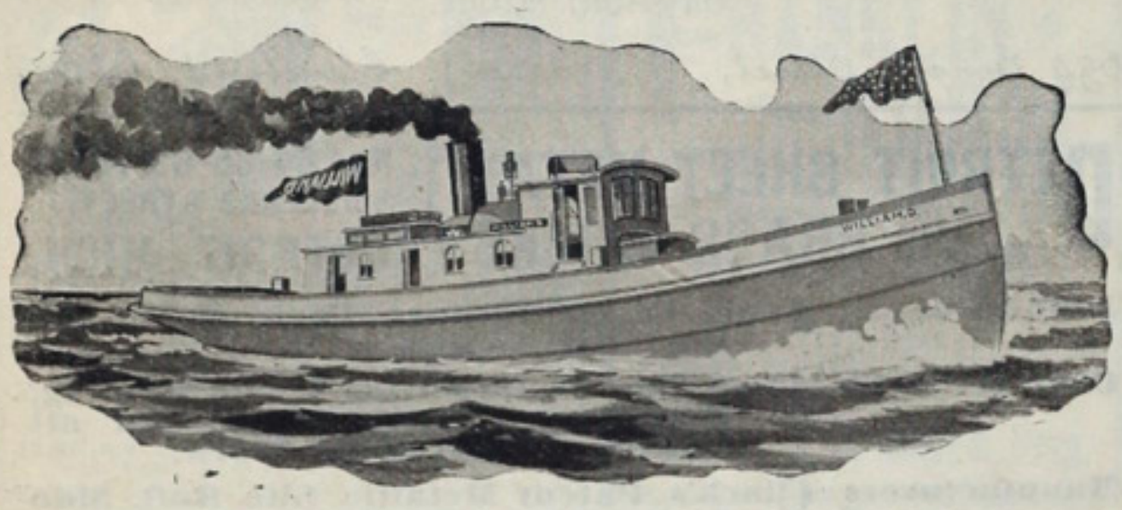

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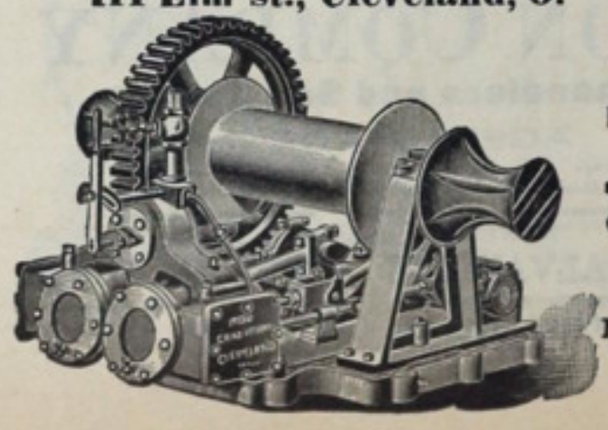

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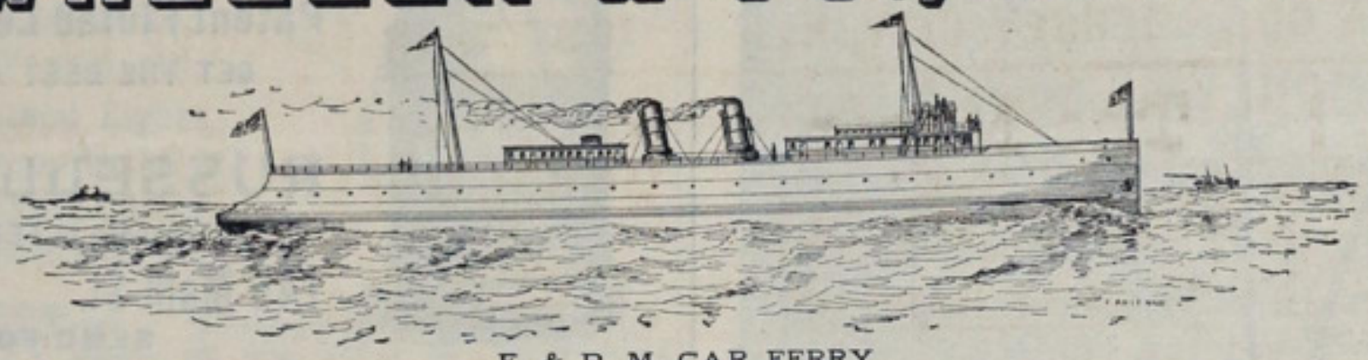

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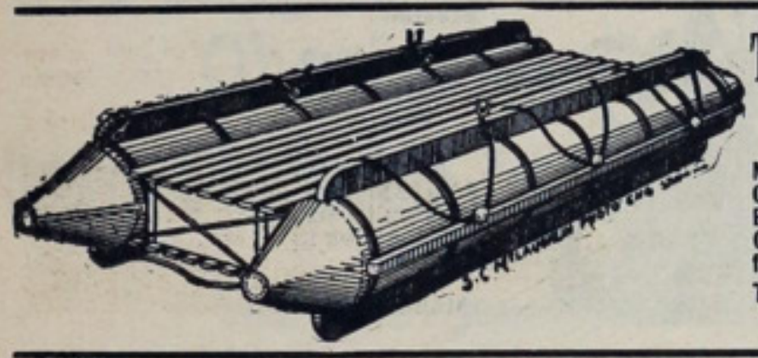

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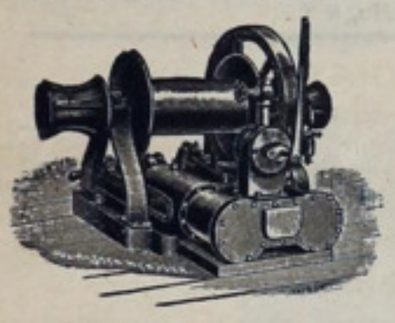

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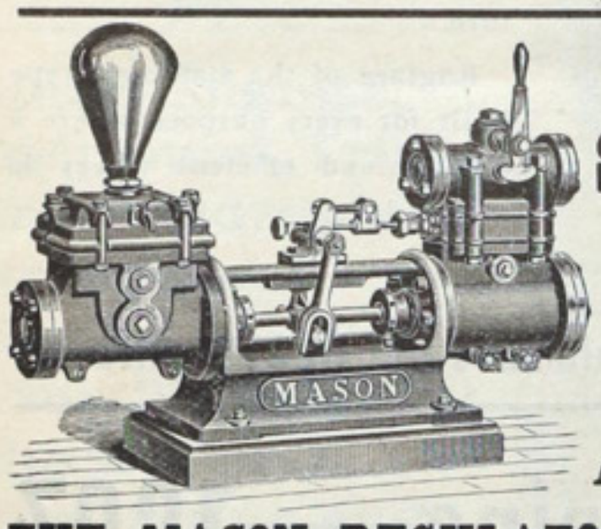

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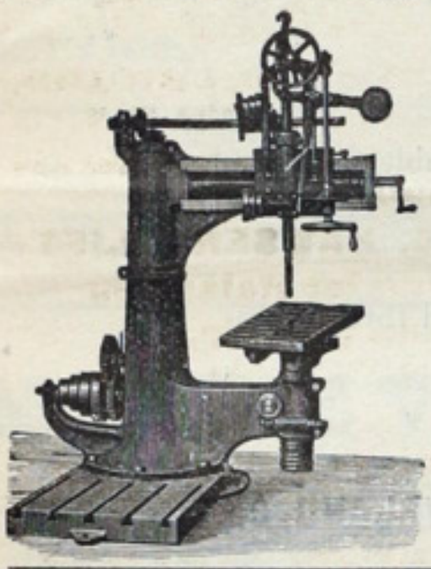

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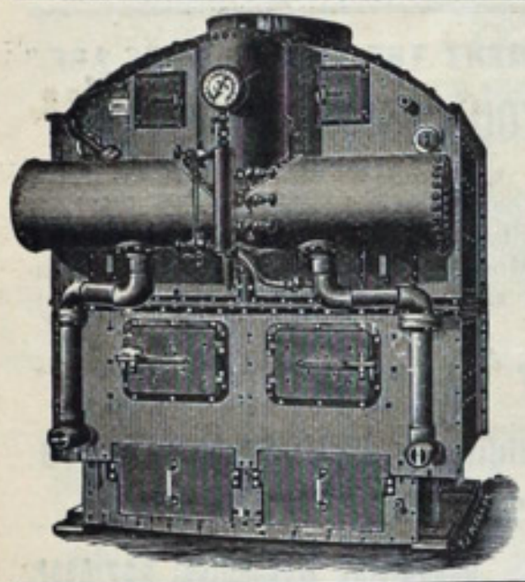

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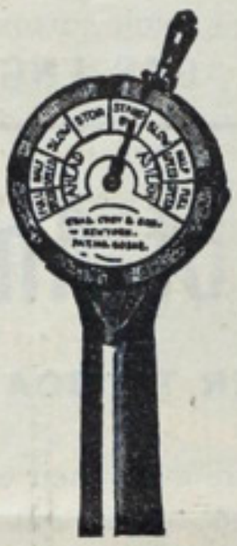

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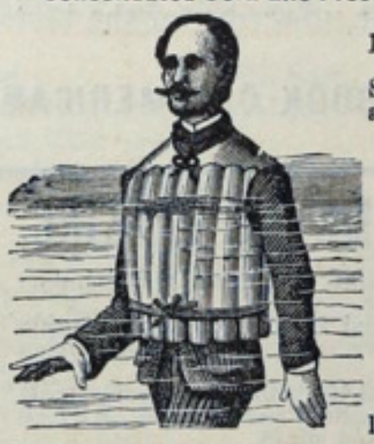

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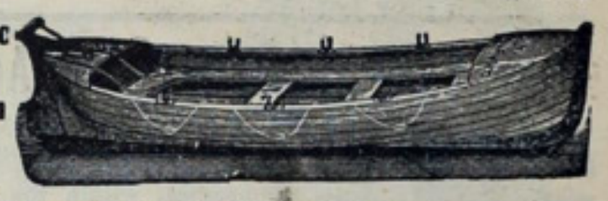

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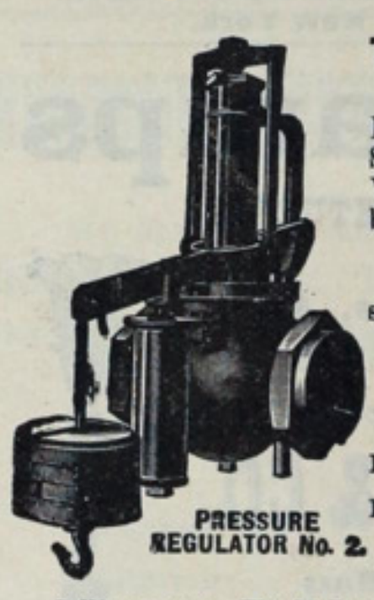

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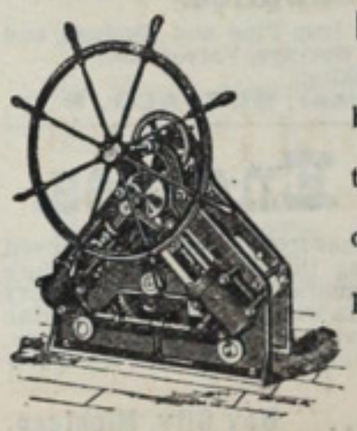

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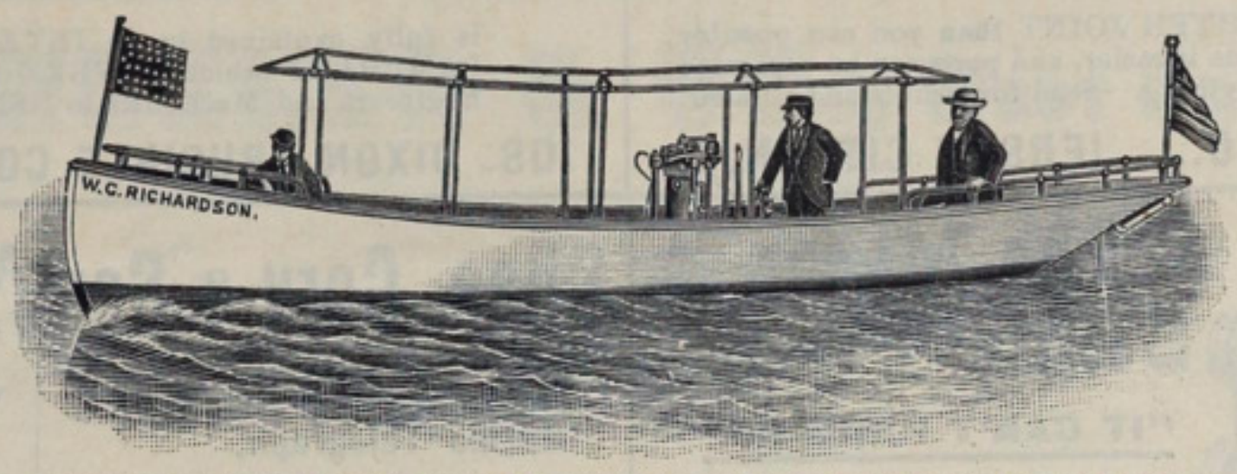

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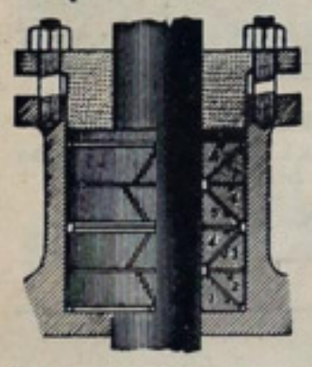

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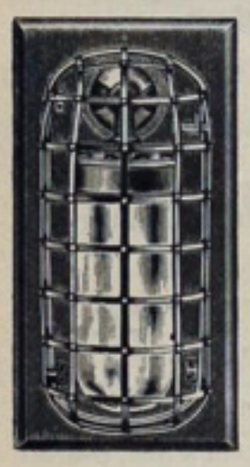

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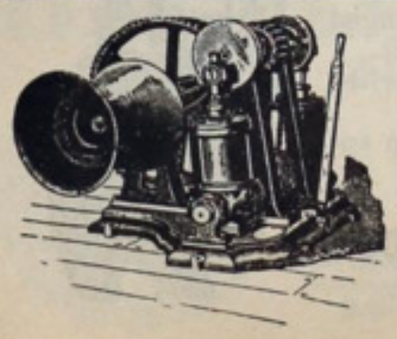

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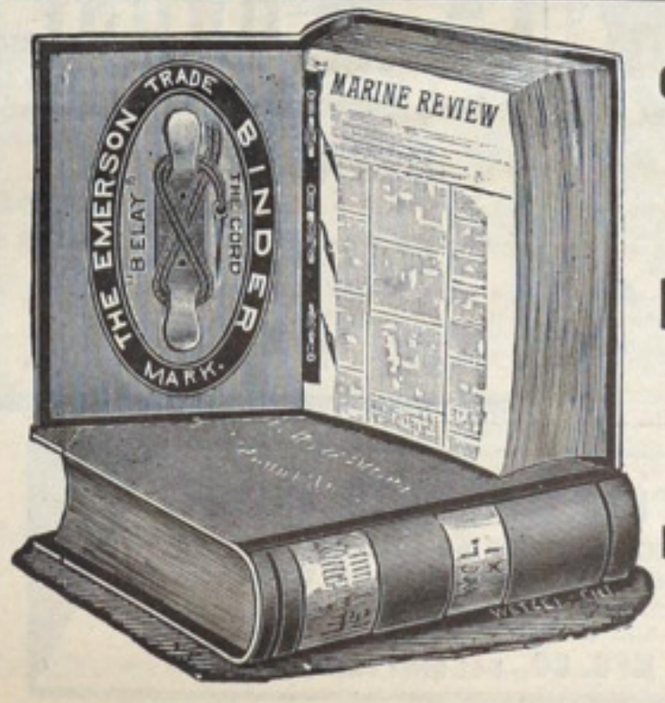

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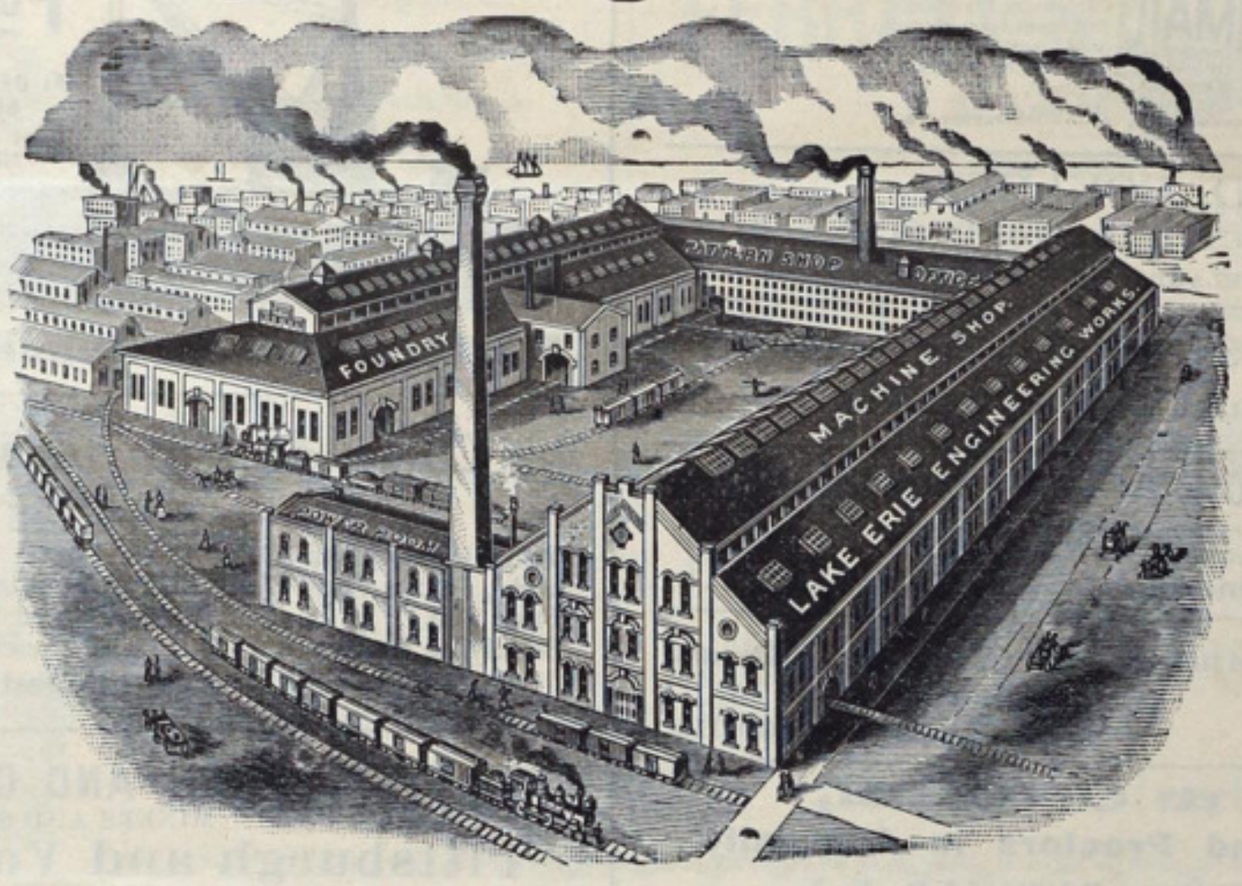

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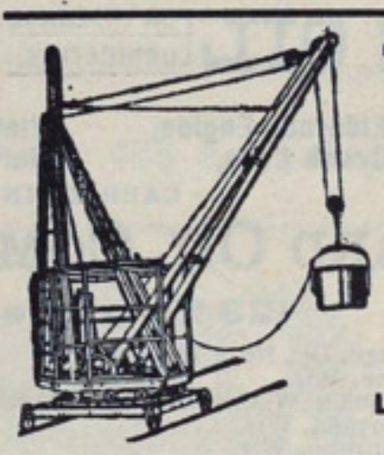

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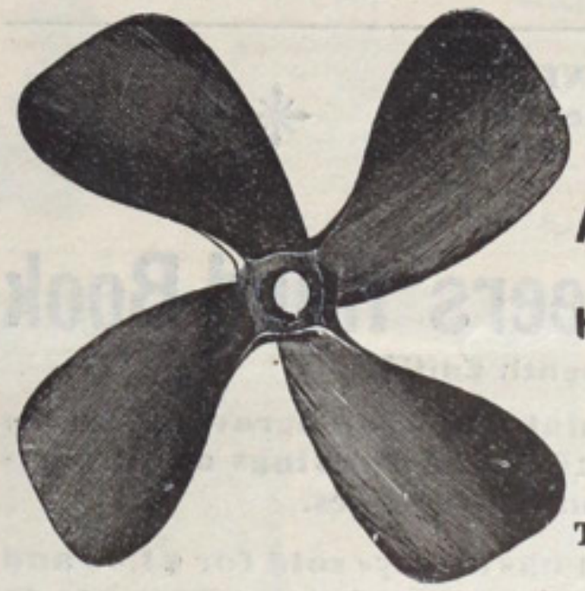

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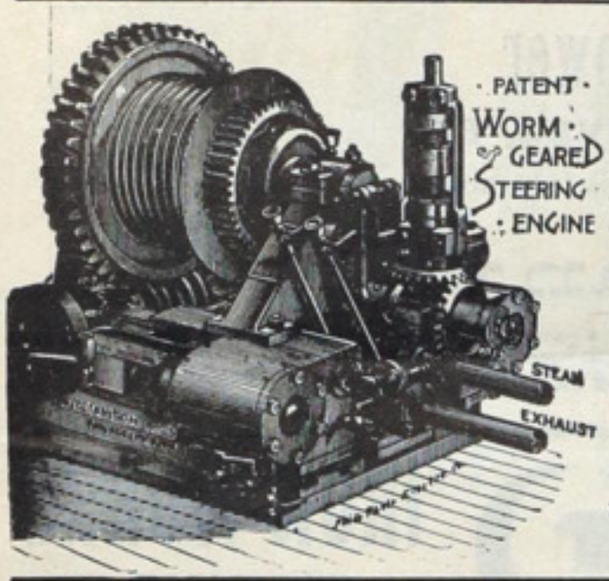

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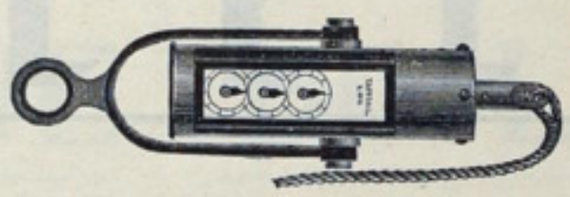

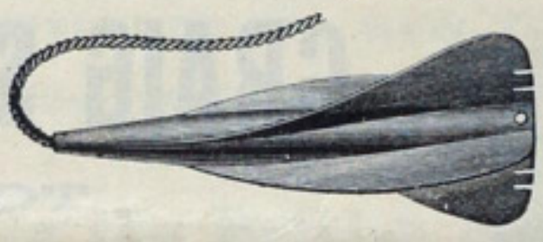

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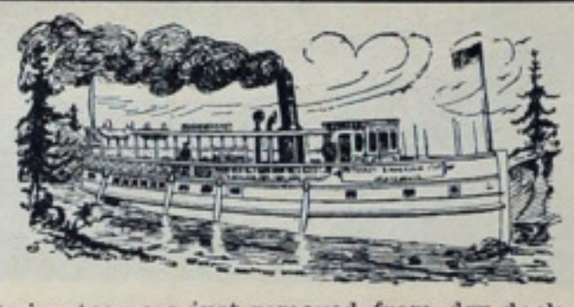

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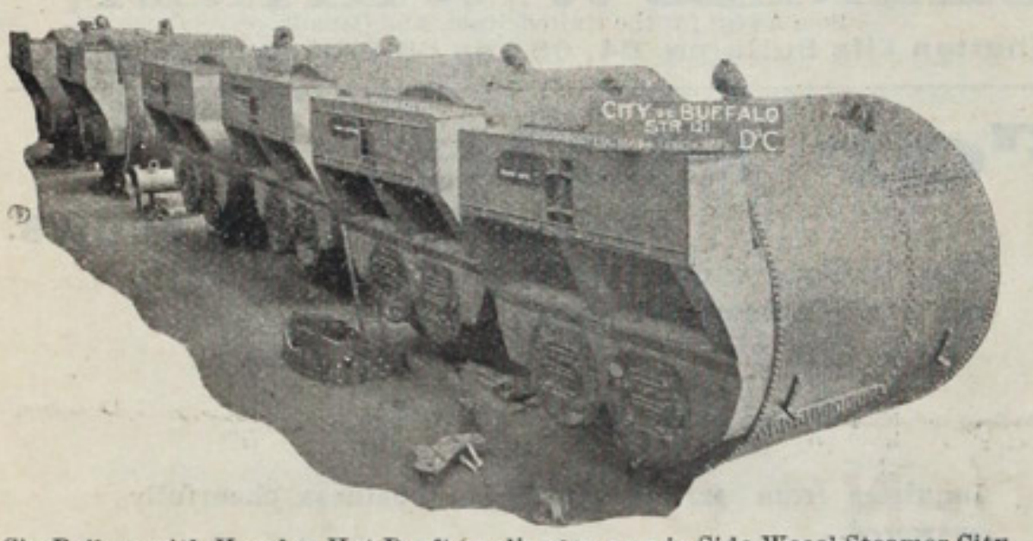

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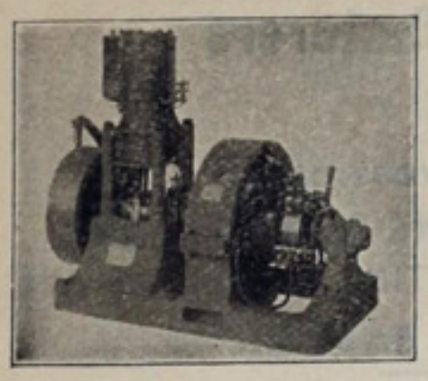

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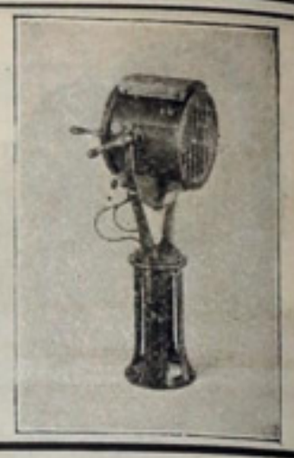

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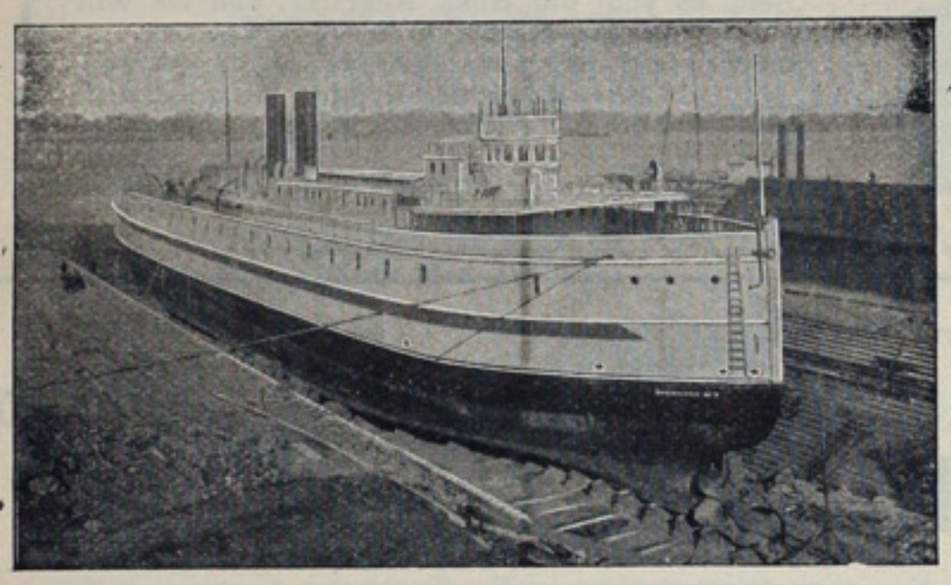

Shenango No. 2, 300 feet long, 54 feet beam.

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PURVES' RIBBED STEEL BOILER FURNACE FLUE.

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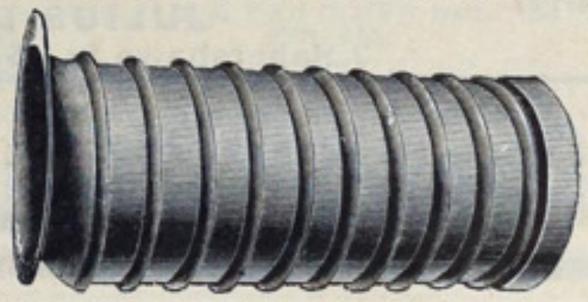

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With this style of Furnace Flue, the rivets at the "back end" are out of the line of fire, and all that has to be done to remove it is to cut out the rivets at the ends and slip it through the front; and to replace it, simply to slip it back in its place and rivet up the ends again without disturbing any other part of the boiler. No smith work is required to fit it in a boiler or to refit it when replaced. It is ready for use as it comes from the manufacturers. This style of Flue has been in use six years without a single complaint.

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DREDGES, TUGS and SCOWS.

Two Dredges and six Dump Scows, one Flat Scow, one Derrick Scow and four Tugs—

One with 15 by 17 engine, allowed 110 lbs. steam.
" " 17 by 16 " " 110 " "
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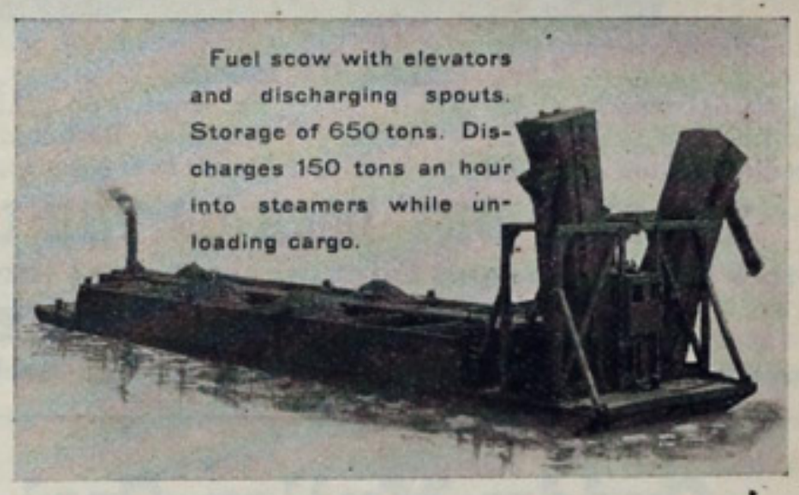

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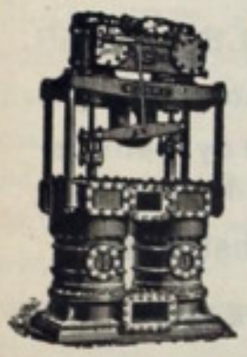

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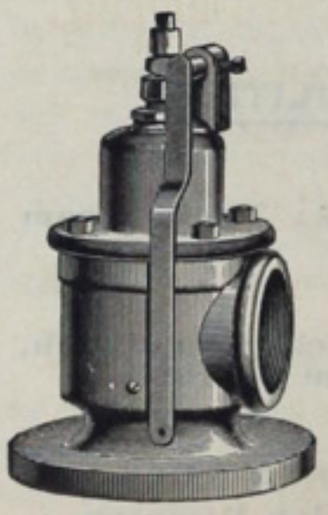

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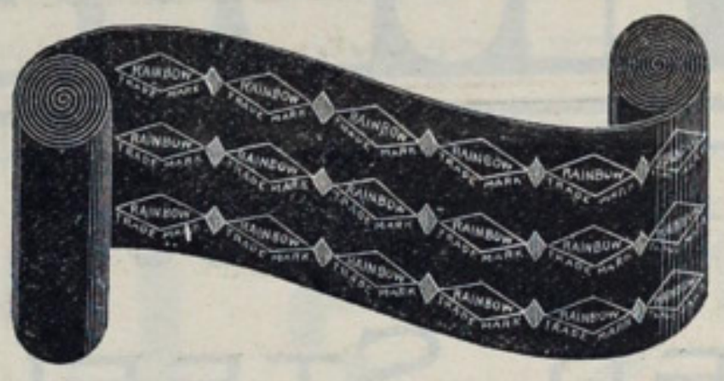

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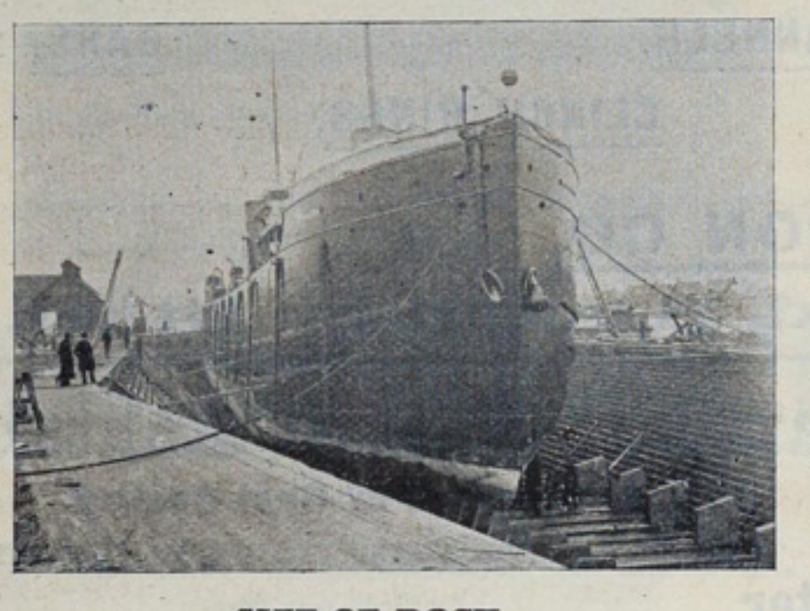

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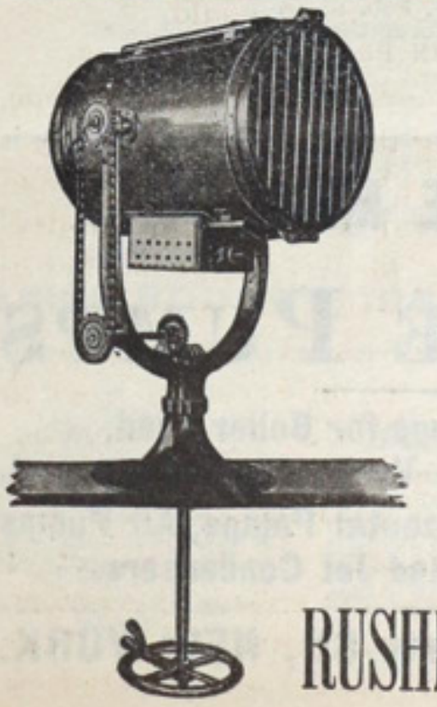

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